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ARTICLE XII.

Description of New Fresh Water and Land Shells. By Isaac Lea. Read Jan. 15, 1841.

LAMARCK, in describing the genus *Melania*, says that they are nearly all exotic. In fact, he does not mention a single species as inhabiting the rivers of Europe. In the United States, we find a great number distributed over a wide geographical range, from the Columbia River to the St. Lawrence. Separating Mr. Say's genus *Anculosa* from *Melania*, we have remaining, described by him and other Zoologists, about sixty species, which, with the fifty-seven now proposed, will make the large number of about one hundred and seventeen species known to inhabit the waters of the United States. The waters of Tennessee seem particularly productive of the different forms of this genus, and I have no doubt that many new ones will be added to the catalogue, as we have numerous ardent and industrious naturalists labouring in the field of investigation.

The greater part of the species which I now propose, it will be observed, were collected by Dr. Troost, who, in his Geological Survey of the state of Tennessee during several years, gave attention enough to its Natural History, to enable us to add largely to the Mollusca already known. Mr. S. M. Edgar and Dr. Currey, assistant geologists in that survey, have also obliged me by the use of their specimens.

As the indigenous and exotic species of the genus *Melania* now known are so numerous, I propose to divide them into sections, comprising—

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|------------------|---------------------|--------------------|
| 1. The Smooth. | 4. The Sulcate. | 7. The Granulate. |
| 2. The Plicate. | 5. The Striate. | 8. The Cancellate. |
| 3. The Carinate. | 6. The Tuberculate. | 9. The Spinose. |

SECTION I.—SMOOTH MELANIÆ.

MELANIA HILDRETHIANA. Plate 5., Fig. 1.

Testâ lævi, fusiformi, subcrassâ, corneâ; spirâ brevi, mucronatâ; suturis valdè impressis; anfractibus quinis, convexis; aperturâ magnâ, ovatâ, infernè angulatâ, vel albâ vel purpureâ.

Shell smooth, fusiform, rather thick, horn-colour; spire short, pointed at the apex; sutures deeply impressed; whorls five, convex; aperture large, angular at base, ovate, white or purple.

Hab. Ohio River, near Marietta. Dr. Hildreth.

My Cabinet, and Cabinets of Dr. Hildreth and P. H. Nicklin.

Diam. .25,

Length .37 of an inch.

Remarks.—The aperture of this little species is nearly two-thirds the length of the shell. In outline it is allied to *M. fusiformis* herein described. It may be distinguished by the sutures being more impressed, and the base being more angular. One of the specimens is purple on the columella, and at the base. I dedicate it to Dr. Hildreth, to whose kindness I owe several specimens.

MELANIA CASTANEA. Plate 5., Fig. 2.

Testâ lævi, clavæformi, subtenui, tenebroso-castaneâ; spirâ elevatâ, prope apicem carinatâ; suturis parvis; anfractibus octonis, convexiusculis; aperturâ parvâ, ellipticâ, purpureâ.

Shell smooth, club-shaped, rather thin, dark brown; spire elevated, carinate towards the apex; sutures small; whorls eight, somewhat convex; aperture small, elliptical, purple.

Hab. Maury County, Tenn. Thos. R. Dutton.

My Cabinet, and Cabinet of T. R. Dutton.

Diam. .25,

Length .67 of an inch.

Remarks.—This species is remarkable for its club-shaped form. It differs from the *clavæformis* herein described, in having a less pointed apex, in being a smaller species, and in being of a darker colour. The first three or four whorls are carinate, and disposed also to be striate and plicate. The aperture is about one-third the length of the shell. The three individuals before me are entirely purple inside, and this gives a very dark appearance to the shell.

MELANIA LÆVIGATA. Plate 5., Fig. 3.

Testâ lævi, obtuso-conicâ, subtenui, nitidâ, luteolâ; spirâ breviusculâ, prope apicem carinatâ; suturis linearibus; anfractibus septenis, subconvexis; aperturâ sub-grandî, ellipticâ; infernè angulatâ, albidâ.

Shell smooth, obtusely conical, rather thin, shining, yellowish; spire rather short, carinate towards the apex; sutures linear; whorls seven, rather convex; aperture rather large, elliptical, angular at base, whitish.

Hab. Alabama River at Claiborne. Judge Tait.

My Cabinet.

Diam. .25,

Length .55 of an inch.

Remarks.—With the *M. Taitiana* herein described, came two specimens of this species, which differs from the *Taitiana* in the elevation of the spire, and the form and size of the aperture. In the most perfect specimen, the columella and base are purplish: The aperture is more than one-third the length of the shell. The upper whorls are slightly carinate on their lower portion.

MELANIA KIRTLANDIANA. Plate 5., Fig. 4.

Testâ lævi, acuto-conicâ, sub-crassâ, nitidâ, corneâ; spirâ elevatâ, prope apicem carinatâ; suturis impressis; anfractibus novenis, convexiusculis; aperturâ parvâ, ellipticâ, albidâ.

Shell smooth, acutely conical, rather thick, shining, horn-coloured; spire elevated, towards the apex carinate; sutures impressed; whorls nine, rather convex; aperture small, elliptical, whitish.

Hab. Richmond, Indiana; Duck Creek, near Cincinnati; and Miami, Ohio. T. G. Lea. Little Miami, Dr. Warder.

My Cabinet, and Cabinets of T. G. Lea, P. H. Nicklin, and Dr. Warder.

Diam. .30,

Length .87 of an inch.

Remarks.—This is a finely-formed, graceful species, with an indistinct carina on the lower part of the whorls, near the apex. The aperture is nearly one-third the length of the shell. I name it after Professor Kirtland, of Poland, Ohio.

MELANIA TAITIANA. Plate 5., Fig. 5.

Testâ lævi, conoideâ, subtenui, nitidâ, corneâ; spirâ decisâ, ad apicem carinatâ; suturis impressis, anfractibus subconvexis; aperturâ parvâ, ellipticâ, infernè subangulatâ, albidâ.

Shell smooth, conical, rather thin, shining, horn-colour; spire truncate; carinate towards the apex; sutures impressed; whorls rather convex; aperture small, elliptical, subangular at base, whitish.

Hab. Alabama River, at Claiborne. Judge Tait.

My Cabinet, and Cabinet of P. H. Nicklin.

Diam. .25,

Length .80 of an inch.

Remarks.—Several years previously to the death of my friend, Judge Tait, he sent me a number of this species, which in form resembles *M. blanda*, described herein. Most of them are without bands; some, however, are finely banded, and all are mutilated at the apex. I dedicate this species to my lamented friend, to whose kindness I owe so many beautiful and interesting objects in the natural history and geology of Alabama.

MELANIA DUBIOSA. Plate 5., Fig. 6.

Testâ levi, conoideâ, subtenui, cornêâ; spirâ subelevatâ; suturis linearibus; anfractibus septenis, subconvexis; aperturâ ellipticâ, parvâ, infernè subangulatâ, albidâ.

Shell smooth, conical, rather thin, horn-colour; spire rather elevated; sutures linear; whorls seven, somewhat convex; aperture elliptical, small, subangular at the base, whitish.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinets of Dr. Troost and P. H. Nicklin.

Diam. .30,

Length .75 of an inch.

Remarks.—This is a rather small species, somewhat like *M. simplex*, Say; but seems to me to differ, in having a more elevated spire, and a smaller aperture. The aperture is rather more than one-third the length of the shell.

MELANIA EBENUM. Plate 5., Fig. 7.

Testâ levi, obtuso-conoideâ, crassâ, nigrâ; spirâ obtusâ; suturis parvis; anfractibus subconvexis; aperturâ subgrandi, ovatâ, infernè subangulatâ, intus purpuratâ.

Shell smooth, obtusely conical, thick, black; spire obtuse; sutures small; whorls somewhat convex; aperture rather large, ovate, subangular at base, within purplish.

Hab. Robinson County, Tenn. Dr. Currey.

My Cabinet, and Cabinet of Dr. Currey.

Diam. .30,

Length .47 of an inch.

Remarks.—A very dark-coloured and rather robust species. It resembles *M. tenebrosa* herein described, but differs in having the whorls rather more convex, and in the outer lip being more curved. All the specimens received had the apex eroded. The number of whorls is therefore not ascertained. The aperture is more than one-third the length of the shell. It is usually purplish on the whole of the inside of the aperture. Some specimens are, however, bluish.

MELANIA RUFA. Plate 5., Fig. 8.

Testâ lævi, turritâ, subtenui, nitidâ, tenebroso-rufâ; spirâ elevatâ; suturis impressis; anfractibus convexis, superioribus carinatis; aperturâ parvâ, ellipticâ, infernè subangulatâ, intus purpuratâ.

Shell smooth, turreted, rather thin, shining, dark-red; spire elevated; sutures impressed; whorls convex, towards the apex carinate; aperture small, elliptical, subangular below, within purplish.

Hab. Mamma's Creek, Tenn. S. M. Edgar.

My Cabinet, and Cabinet of Mr. Edgar.

Diam. .30,

Length .85 of an inch.

Remarks.—In form this species resembles *M. teres* herein described. It differs in the colour being red, and in being carinate on the superior whorls. The most perfect specimen in my possession has the few first whorls broken. I should suppose a perfect one would have eight whorls, and the aperture be one-fourth the length of the shell.

MELANIA FUSIFORMIS. Plate 5., Fig. 9.

Testâ lævi, fusiformi, subtenui, luteâ, mucronatâ; spirâ brevi; suturis linearibus; anfractibus senis, ultimo magno et inflato; aperturâ ovato-productâ, albidâ.

Shell smooth, fusiform, rather thin, yellow, pointed at the apex; spire short; sutures linear; whorls six, the last being large and inflated; aperture ovately elongated, whitish.

Hab. Tennessee. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .27,

Length .50 of an inch.

Remarks.—This is a very remarkable species in regard to its form, resembling as it does the young of some species of *Columbella*. The aperture is about

two-thirds the length of the shell, and is somewhat angular at base, above it turns inward. One of six individuals before me has two rather broad bands. On the superior whorls may be observed an indistinct stria.

MELANIA CLAVÆFORMIS. Plate 5., Fig. 10.

Testâ lævi, clavæformi, subtenui, castaneo-fuscâ, nitidâ; spirâ acutâ; suturis subimpressis; anfractibus octonis, convexis; aperturâ productâ, pallido-purpureâ.

Shell smooth, club-shaped, rather thin, chestnut brown, shining; spire acute; sutures somewhat impressed; whorls eight, convex; aperture elongated, light purple.

Hab. Ocoee District, Tenn. Dr. Troost.

“ Clinch River, Tenn. Dr. Warder.

My Cabinet, and Cabinets of Dr. Troost, Dr. Warder, and P. H. Nicklin.

Diam. .27,

Length .67 of an inch.

Remarks.—The aperture is about one-third the length of the shell. In colour it differs from most species.

MELANIA GRACILIS. Plate 5., Fig. 11.

Testâ lævi, clavæformi, subtenui, corneâ; spirâ acutâ; suturis impressis; anfractibus octonis, convexis; aperturâ parvâ, ovatâ, albidâ.

Shell smooth, club-shaped, rather thin, horn-coloured; spire acute; sutures impressed; whorls eight, convex; aperture small, ovate, whitish.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .32,

Length .75 of an inch.

Remarks.—This resembles the *clavata* in form, but is rather more robust. It differs also in colour. The aperture is rather more than one-third the length of the shell.

MELANIA SUBSOLIDA. Plate 5., Fig. 12.

Testâ lævi, subfusiformi, subsolidâ, corneâ; spirâ acutâ; suturis impressis; anfractibus subconvexis; aperturâ subproductâ, intus purpureâ.

Shell smooth, subfusiform, somewhat solid, horn-coloured; spire acute; sutures impressed; whorls somewhat convex; aperture somewhat elongated, within purple.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .32,

Length .82 of an inch.

Remarks.—This species has a strong resemblance to *M. simplex*, Say. It is however more elevated in the spire. It is purplish within, but white towards the margin of the lip.

MELANIA OCOEENSIS. Plate 5., Fig. 13.

Testâ lævi, conoideâ, subcrassâ, tenebroso-corneâ; spirâ obtusâ, apud apicem-lineis notatâ; suturis impressis; anfractibus subconvexis; aperturâ parvâ, ovatâ, cæruleâ.

Shell smooth, conical, somewhat thick, dark horn-coloured; spire obtuse, toward the apex lined; sutures impressed; whorls somewhat convex: aperture small, ovate, bluish.

Hab. Ocoee District, Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .32,

Length .92 of an inch.

Remarks.—Five specimens are before me, all of which are more or less decollate. None of them have bands. Oblique, irregular striæ may be observed more or less on all those which I have examined.

MELANIA SUBCYLINDRACEA. Plate 5., Fig. 14.

Testâ lævi, subcylindraceâ, subcrassâ, corneâ; spirâ obtuso-elevatâ; suturis impressis; anfractibus convexis; aperturâ parvâ, ovatâ, albidâ.

Shell smooth, sub-cylindrical, somewhat thick, horn-colour; spire obtusely elevated; sutures impressed; whorls convex; aperture small, ovate, whitish.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .32,

Length .85 of an inch.

Remarks.—This is a club-shaped species with an aperture about the third of the length of shell. All the specimens sent by Dr. Troost are more or less decollate.

MELANIA SORDIDA. Plate 5., Fig. 15.

Testâ lævi, conoideâ, subcrassâ, tenebroso-corneâ; suturis impressis; anfractibus subconvexis; aperturâ subgrandi, subrotundâ, intus cœruleâ.

Shell smooth, conical, somewhat thick, dark horn-coloured; sutures impressed; whorls somewhat convex; aperture rather large, somewhat rounded, within bluish.

Hab. Tennessee. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .40,

Length 1.02 of an inch.

Remarks.—The whole of five individuals before me have the apex decollate. This species closely resembles the *Ocoënsis* herein described. It is, however, larger in the aperture, which is more rotund, and the species seems to be larger.

MELANIA REGULARIS. Plate 5., Fig. 16.

Testâ lævi, conoideâ, subcrassâ, tenebroso-corneâ; spirâ elevatâ; suturis subimpressis; anfractibus planulatis; aperturâ parvâ, albidâ.

Shell smooth, conical, rather thick, dark horn-coloured; spire elevated: sutures somewhat impressed; whorls flat; aperture small, whitish.

Hab. Ocone District, Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .40,

Length 1.22 of an inch.

Remarks.—This species has a regularly increasing and elevated spire. Neither of the three before me have perfect tips. The number of whorls must be about ten. The aperture is about one-fourth the length of the shell.

MELANIA FULIGINOSA. Plate 5., Fig. 17.

Testâ lævi, fusiformi, subinflatâ, subcrassâ, tenebroso-fuscâ; spirâ obtusâ; suturis impressis; anfractibus senis, subconvexis; aperturâ magnâ, ad basim angulatâ et canaliculatâ.

Shell smooth, fusiform, somewhat inflated, rather thick, dark brown; spire obtuse; sutures impressed; whorls six, somewhat convex; aperture large, at the base angular and channeled.

Hab. Big Bigby Creek, Maury Co. Tenn. T. R. Dutton.

My Cabinet, and Cabinet of Mr. Dutton.

Diam. .50,

Length .85 of an inch.

Remarks.—In general form this species resembles the *M. Duttoniana*, (nobis) but differs in being less elevated in the spire, in being without tubercles, and of a very dark colour; the substance of the shell is disposed to be purple. The epidermis is thick and very dark. Mr. Dutton found it rare.

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MELANIA NICKLINIANA. Plate 5, Fig. 18.

Testâ lævi, obtuso-conoideâ, solidâ, valdè tenebrosâ; suturis impressis; anfractibus senis, subconvexis; aperturâ magnâ, subrotundâ, intus purpuratâ.

Shell smooth, obtusely conical, solid, very dark; sutures impressed; whorls six, slightly convex; aperture large, somewhat rounded, within purple.

Hab. Bath County, Va. P. H. Nicklin.

My Cabinet, and Cabinet of Mr. Nicklin.

Diam. .27,

Length .45 of an inch.

Remarks.—This is a robust, small species which seems not to have been before noticed. It was found by Mr. Nicklin in a small stream of cold water at the Hot Springs in Virginia. It is amongst the smallest species I have seen. The purple colour of the interior of most of the specimens, gives the shell a very dark appearance. I owe to the kindness of Mr. Nicklin, to whom I dedicate it, the possession of several specimens of this species. I am under obligations to him also for a fine suite of *M. inflata* (nobis). They were found in New River, Va. being that part of the great Kanawha which is above its junction with the Gauley River. Some of the specimens have longer spires; some are lineolate, some banded, and others are without bands. Thus presenting characters differing so much, as almost to deceive one as to their being identical.*

* Since the above was written I have received from Dr. Warder of Cincinnati a specimen from New River, which, with a re-examination of Mr. Nicklin's specimens, satisfies me that the shell described by Mr. Conrad in the appendix to his "Fresh Water Shells of the United States," under the names of *M. Rogersii* and *dilatata* are identical with my *inflata*, my description bearing date the previous year to his.

Within a few days I have observed in the Boston Journal of Nat. Hist. vol. 3, No. 3, descriptions of two

MELANIA VIRIDIS. Plate 5, Fig. 19.

Testâ lævi, subfusiformi, subcrassâ, viridi; spirâ brevi, obtuso conoideâ; suturis linearibus; anfractibus quinis, subconvexis; aperturâ ovatâ, subgrandi, albâ.

Shell smooth, subfusiform, rather thick, green; spire short, obtusely conical; sutures linear; whorls five, somewhat convex; aperture ovate, rather large, white.

Hab. Vicinity of Cincinnati, Ohio. T. G. Lea.

My Cabinet, and Cabinets of T. G. Lea, and P. H. Nicklin.

Diam. .27, Length .32 of an inch.

Remarks.—Inhabits with the *M. occidentalis* herein described, and resembles it. It is a smaller species, has one more whorl, has a higher spire, and among nine individuals before me, I see no indications of transverse striæ. The aperture is rather more than half the length of the shell.

MELANIA OCCIDENTALIS. Plate 5, Fig. 20.

Testâ lævi, subglobosâ, subcrassâ, viridi; spirâ brevi, mucronatâ; suturis linearibus; anfractibus quaternis, subconvexis; aperturâ ovatâ, magnâ, intus vel purpureâ vel albâ.

Shell smooth, subglobose, rather thick, green; spire short, pointed; sutures linear; whorls four, somewhat convex; aperture ovate, large, within purple or white.

Hab. Vicinity of Cincinnati, Ohio. T. G. Lea.

My Cabinet, and Cabinets of T. G. Lea, and P. H. Nicklin.

Diam. .30, Length .37 of an inch.

Remarks.—This is a fine species about the size of *Melania subglobosa*, Say, (*Anculosa*) and it has been confounded with it. I have specimens of *subglobosa* which were brought by Prof. Vanuxem from the Holston, at the time he gave

new species of *Anculosa* by Mr. Anthony. *Anculotus carinatus* and *Anculotus Kirtlandianus*, both from the falls of the Kanawha. Judging from the description and figures, I am led to the conclusion, that both these were identical with *M. inflata*, and from the great variety of this proteus species, I am not surprised at its being mistaken. The peculiar character, however, of the angle and channel of the base in this species, is evident throughout. I am not aware of the animal having been yet observed: when examined, it may prove to be a true *Anculosa*. If so, the synonymy will stand thus:

Anculosa inflata, Lea.

Melania dilatata, Conrad.

Melania Rogersii, Conrad.

Anculotus carinatus, Anthony.

Anculotus Kirtlandianus, Anthony.

them to Mr. Say for description. They certainly do not appear to me to be the same, although in many characters they agree. The animal of *occidentalis* I have not seen; the operculum is spiral; at present I prefer to place it among the *Melania*. Some of the varieties before me are very beautifully furnished with raised revolving striæ. When there is a single one, it gives the shell the appearance of being carinate, as it appears near the centre of the whorl. In some specimens these striæ are more numerous; in a single one I have counted fifteen. There appear to be no bands on the outside, but sometimes purple lines on the inside mark the places of the exterior striæ. There is generally more or less colour in the interior and about the columella, the base of which is disposed to be angular. The aperture is nearly three-fourths the length of the shell.*

MELANIA NIAGARENSIS. Plate 5, Fig. 21.

Testâ lævi, obtuso-conicâ, crassâ, corneâ; spirâ brevi; suturis linearibus; anfractibus subplanulatis; aperturâ subgrandi, ellipticâ, intus purpureâ.

Shell smooth, obtusely conical, thick, horn-coloured; spire short; sutures linear; whorls rather flat; aperture rather large, elliptical, within purple.

Hab. Falls of Niagara.

My Cabinet, and Cabinet of P. H. Nicklin.

Diam. .25,

Length .55 of an inch.

Remarks.—I obtained this shell many years since at the foot of the falls of Niagara, where it exists in abundance. It may generally have been confounded with *M. depygis*, Say. When I procured it, I placed it in my cabinet under that name with a mark of doubt. It is a smaller shell than the *depygis*, has a shorter spire and a narrower aperture. This species has a purple columella and interior, which in some cases are very dark. The specimens procured were all more or less eroded, and the apex removed. The number of whorls is either six or seven. The aperture is nearly half the length of the shell.

* Since the above was written, I have seen in the "Boston Journal of Science," the description and figure by Mr. Anthony, of *Anculotus costatus* which in some respects answers to this shell. Mr. A. says that his shell has "about five costæ revolving around it."

MELANIA GLOBULA. Plate 5, Fig. 22.

Testâ lævi, subglobosâ, tenebroso-fuscâ, fasciatâ; spirâ brevi; suturis impressis; anfractibus quaternis, subconvexis; aperturâ magnâ, subrotundâ, intus cæruleâ.

Shell smooth, subglobose, dark brown, banded; spire short; sutures impressed; whorls four, rather convex; aperture large, nearly round, within bluish.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .22,

Length .25 of an inch.

Remarks.—This is a small globose species, with two very broad bands, one immediately over, and the other below the middle of the body whorl. The columella is white, inclined to a rusty hue. The interior of the base is reddish. Some of the specimens are small, and present a variety in which the columella is redder, and the epidermis more yellow, with the same distinctive bands. The aperture is nearly two-thirds the length of the shell.

MELANIA ALTILIS. Plate 5, Fig. 23.

Testâ lævi, subglobosâ, crassâ, pallido-corneâ; spirâ brevi; suturis parvis; anfractibus quaternis, supernè subangulatis; aperturâ magnâ, subrotundâ, albâ.

Shell smooth, subglobose, thick, pale horn-colour; spire short; sutures small; whorls four, obtusely angular above; aperture large, nearly round, white.

Hab. Santee Canal, South Car. Professor Ravenel.

“ Susquehanna River, at Havre de Grace, Md.

Paludina altilis. Professor Ravenel's letter.

My Cabinet, and Cabinet of P. H. Nicklin.

Diam. .27,

Length .32 of an inch.

Remarks.—Last summer I found a number of this globose little species on the banks of the Susquehanna, and then considered it new, but on examination I found I had the same species, Prof. Ravenel having sent it to me many years since under the name of *Paludina altilis*. I am not aware that Prof. R. has ever described it, never having seen any account of it. His specific name for it is retained, but I have placed it among the *Melania*, it having a distinct

spiral operculum. It belongs to a natural group in the genus *Melania*, which have very low spires and a very large body whorl. There is a very slight impression on the superior part of the whorls below the suture. The aperture is about two-thirds the length of the shell. The epidermis in young specimens is a very pale yellow, almost white.

MELANIA STRIGOSA. Plate 5, Fig. 24.

Testâ lævi, turrito-acutâ, tenui, pallido-luteâ, supernè striatâ; spirâ exsertâ; suturis impressis; anfractibus novenis, planulatis; aperturâ parvâ, ellipticâ, ad basim angulatâ, intus cœruleâ.

Shell smooth, acutely turrited, thin, pale yellow, striate above; spire drawn out; sutures impressed; whorls nine, flattened; aperture small, elliptical, angular at the base, within bluish.

Hab. Tenn. Dr. Troost.

“ Holston River. Dr. Warder.

My Cabinet, and Cabinets of Dr. Troost, and Dr. Warder.

Diam. .27,

Length .85 of an inch.

Remarks.—This species is somewhat like the *teres* herein described. It may be distinguished, however, at once by its flattened whorls and darker colour.

MELANIA VIRGATA. Plate 5, Fig. 25.

Testâ lævi, subrotundâ, subtenui, luteâ, bifasciatâ, nitidâ; spirâ brevi; suturis linearibus; anfractibus convexis; aperturâ magnâ, ellipticâ, albidâ.

Shell smooth, rounded, rather thin, yellow, double-banded, shining; spire short; sutures linear; whorls convex; aperture large, elliptical, whitish.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .20,

Length .30 of an inch.

Remarks.—A single specimen only of this small species was sent to me by Dr. Troost. It seems to be mature, and is remarkable for the two broad bands which nearly cover the whorls. The aperture is about half the length of the shell.

MELANIA TENEBROSA. Plate 5, Fig. 26.

Testâ lævi, conoideâ, subcrassâ, subnigrâ; spirâ subelevatâ; suturis impressis; anfractibus planulatis; aperturâ subgrandi, ellipticâ, ad basim angulatâ, intus cœruleâ.

Shell smooth, conical, rather thick, nearly black; spire rather elevated; sutures impressed; whorls flattened; aperture rather large, elliptical, at the base angular, within bluish.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .30,

Length .72 of an inch.

Remarks.—Two specimens of this species were sent to me by Dr. Troost, both of which are decollated. On one there is a slight disposition to striæ on the upper remaining whorl. In general outline it resembles a small *Virginica*, Say.

SECTION II.—PLICATE MELANIÆ.

MELANIA TERES. Plate 5, Fig. 27.

Testâ plicatâ, acuto-turritâ, tenui, corneâ; spirâ exsertâ; suturis impressis; anfractibus novenis, convexis; aperturâ parvâ, ellipticâ, intus albidâ.

Shell folded, acutely turrited, thin, horn-coloured; spire drawn out; sutures impressed; whorls nine, convex; aperture small, elliptical, within whitish.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinets of Dr. Troost, and P. H. Nicklin.

Diam. .25,

Length .87 of an inch.

Remarks.—This is a remarkably elevated species, with the whorls much inflated, and the last whorl very small. Some of the specimens before me are but obscurely folded.

MELANIA OBTUSA. Plate 5, Fig. 28.

Testâ plicatâ, fusiformi, subcrassâ, corneâ; spirâ obtusâ; suturis impressis; anfractibus quaternis, ultimo semi-plicato; aperturâ magnâ, albidâ.

Shell folded, fusiform, rather thick, horn colour; spire obtuse; sutures impressed; whorls four, the last semi-plicate; aperture large, whitish.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .27,

Length .55 of an inch.

Remarks.—A fusiform species with costæ or folds half-way down the last whorl.

MELANIA LECONTIANA. Plate 5, Fig. 29.

Testâ plicatâ, conoideâ, crassâ, corneâ; spirâ obtuso-elevatâ; suturis parvis; anfractibus senis, planulatis; aperturâ magnâ, ellipticâ, cæruleâ.

Shell folded, conical, thick, horn colour; spire obtusely elevated; sutures small; whorls six, flattened; aperture large, elliptical, bluish.

Hab. Georgia. Major Le Conte.

My Cabinet, and Cabinet of Major Le Conte.

Diam. .35,

Length .80 of an inch.

Remarks.—The folds of this species extend over the whole shell, except the inferior half of the body whorl. The aperture is large, and somewhat dilated, being nearly one-half the length of the shell.

I owe the possession of several specimens to the kindness of Major Le Conte, to whom I dedicate it.

MELANIA CORRUGATA. Plate 5, Fig. 30.

Testâ plicatâ, conoideâ, subtenui, diaphana, transversè striatâ, corneâ; spirâ subelevatâ; suturis valdè impressis; anfractibus septenis, convexis, supernè cancellatis; aperturâ subgrandi, ellipticâ, infra angulatâ, albidâ.

Shell folded, conical, rather thin, translucent, transversely striated, horn colour; spire rather elevated; sutures very much impressed; whorls seven, convex, cancellated above; aperture rather large, elliptical, angular below, whitish.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .22,

Length .50 of an inch.

Remarks.—This is a small, folded species of which a single specimen was received from Dr. Troost. The superior whorls are carinated. The folds extend to the body whorl. The aperture is rather more than one-third the length of the shell.

MELANIA MONOZONALIS. Plate 6, Fig. 31.

Testâ plicatâ, fusiformi, subcrassâ, fasciatâ, pallidâ; spirâ obtusâ; suturis linearibus; anfractibus quinis, subconvexis; aperturâ magnâ, ellipticâ, infra angulatâ, albâ.

Shell folded, fusiform, rather thick, banded, light-coloured; spire obtuse; sutures linear; whorls five, rather convex; aperture large, elliptical, angular at base, white.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. 21,

Length .42 of an inch.

Remarks.—But a single specimen of this was sent to me by Dr. Troost. It is a very distinct species, and remarkable for a single broad band on the upper part of the whorl. In other specimens this band may not always be found to present the same character; and the number of bands in others again may even be increased. The aperture is about one-half the length of the shell.

MELANIA TEREBRALIS. Plate 6, Fig. 32.

Testâ plicatâ, acuto-turritâ, subtenui, nitidâ, rufo-fuscâ; spirâ valdè elevatâ; suturis valdè impressis; anfractibus novenis, convexis, supernè carinatis; aperturâ parvâ, ellipticâ, albidâ.

Shell folded, acutely turrit, rather thin, shining, reddish brown; spire much elevated; sutures much impressed; whorls nine, convex, carinate above; aperture small, elliptical, whitish.

Hab. Tenn. Dr. Troost.

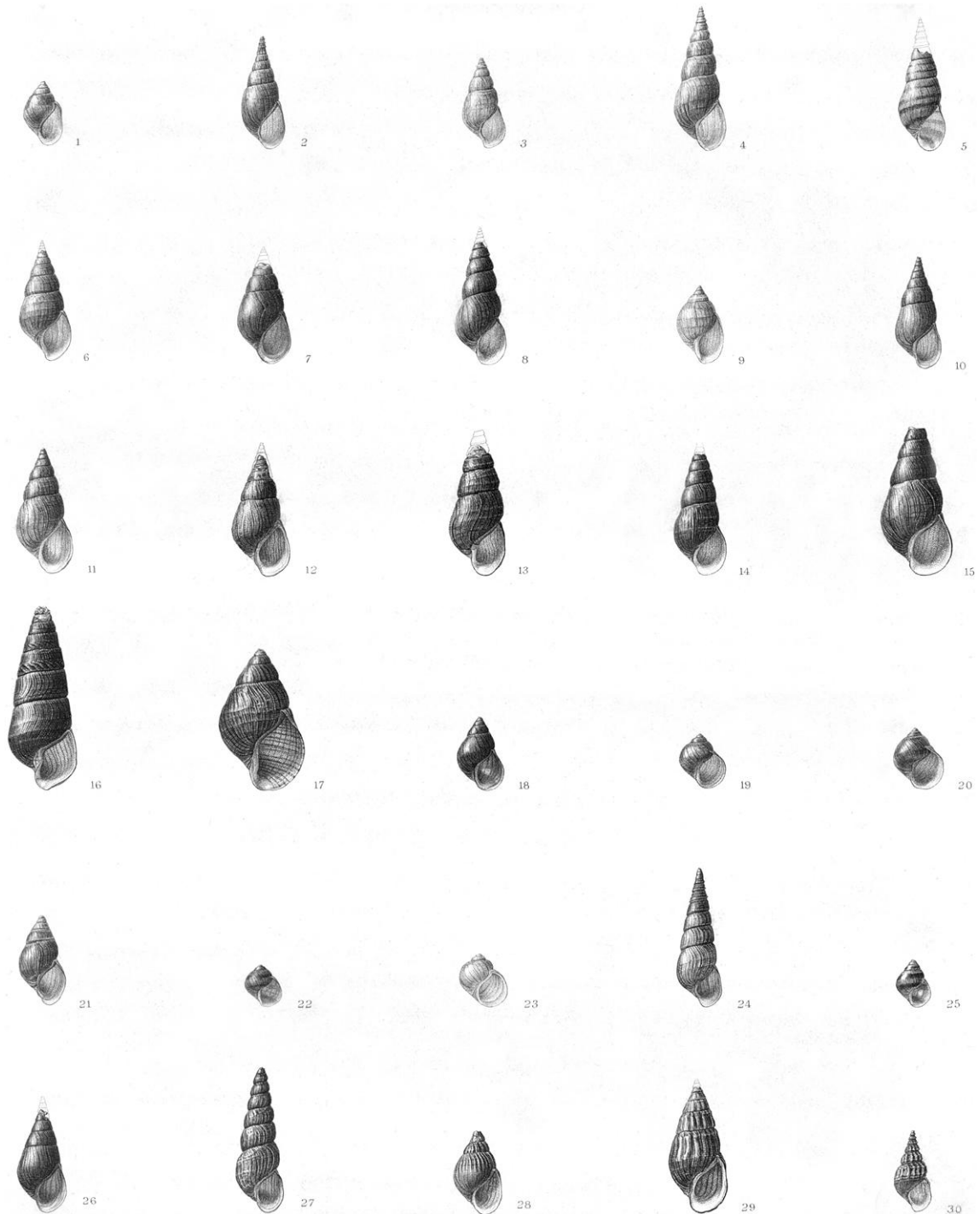
My Cabinet, and Cabinet of Dr. Troost.

Diam. .24,

Length .67 of an inch.

Remarks.—This species differs in the form of the folds from any which have come under my notice. These folds are distant from each other, but slightly raised, and give the shell a varicose appearance. The mouth is about the fifth part of the length of the shell.

MELANIA.



1 *M. Hildrethiana*
 2 „ *castanea*.....
 3 „ *levigata*.....
 4 „ *Kirtlandiana*
 5 „ *Taitiana*.....
 6 „ *dubiosa*.....
 7 „ *ebenum*.....

8 *M. rufa*.....
 9 „ *fusiformis*.....
 10 „ *clavaformis*.....
 11 „ *gracilis*.....
 12 „ *subsolida*.....
 13 „ *Ocoënsis*.....
 14 „ *subcylindracea*
 15 „ *sordida*.....

16 *M. regularis*.....
 17 „ *fuliginosa*.....
 18 „ *Nickliniana*.....
 19 „ *viridis*.....
 20 „ *occidentalis*.....
 21 „ *Niagarensis*
 22 „ *globula*.....
 23 „ *altilis*.....

24 *M. strigosa*.....
 25 „ *virgata*.....
 26 „ *tenebrosa*.....
 27 „ *teres*.....
 28 „ *obtusa*.....
 29 „ *Leontiana*
 30 „ *corrugata*.....

MELANIA COLUMELLA. Plate 6, Fig. 33.

Testâ obscuro-plicatâ, conoideâ, subtenui, corneâ; spirâ subelevatâ, propè apicem striatâ; suturis impressis; anfractibus senis, subconvexis; aperturâ parvâ, ellipticâ, infernè angulatâ, albidâ.

Shell obscurely plicate, conical, rather thin, horn colour; spire rather elevated, striate towards the apex; sutures impressed; whorls six, somewhat convex; aperture small, elliptical, angular at base, whitish.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .26,

Length .63 of an inch.

Remarks.—This species is remarkable for the impressed curve on the columella. In its general character it resembles the *M. blanda* herein described. The aperture is about one-third the length of the shell.

MELANIA BLANDA. Plate 6, Fig. 34.

Testâ plicatâ, conoideâ, subtenui, nitidâ, corneâ; spirâ subelevatâ, propè apicem striatâ; suturis impressis; anfractibus septenis, subplanulatis; aperturâ parvâ, ellipticâ, infernè angulatâ, albidâ.

Shell folded, conical, rather thin, shining, horn colour; spire rather elevated; towards the apex striate; sutures impressed; whorls seven, rather flattened; aperture small, elliptical, angular at the base, whitish.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .26,

Length .69 of an inch.

Remarks.—A single specimen of this species was received from Dr. Troost. The folds are obscure and the striæ small. The aperture is not quite one-third the length of the shell.

MELANIA CREBRI-COSTATA. Plate 6, Fig. 35.

Testâ crebri-plicatâ, conoideâ, subcrassâ, corneâ; spirâ elevatâ; suturis linearibus; anfractibus septenis, planulatis; aperturâ parvâ, ellipticâ, infernè angulatâ, cœruleâ.

Shell closely folded, conical, rather thick, horn colour; spire elevated; sutures linear; whorls seven, flattened; aperture small, elliptical, below angular, bluish.

Hab. Robinson County, Tenn. Dr. Currey.

My Cabinet, and Cabinet of Dr. Currey.

Diam. .28,

Length .90 of an inch.

Remarks.—This is rather a slender shell, and is peculiar for its numerous folds, which are slightly curved and parallel. They extend over the whole shell, except the inferior half of the body whorl. The aperture is about one-third the length of the shell.

MELANIA CURREYANA. Plate 6, Fig. 36.

Testâ plicatâ, conoideâ, subcrassâ, corneâ; spirâ subelevatâ; suturis irregulariter impressis; anfractibus septenis, subconvexis; aperturâ parvâ, infernè angulatâ, intus purpuratâ.

Shell folded, conical, rather thick, horn colour; spire somewhat elevated; sutures irregularly impressed; whorls seven, rather convex; aperture small, angular below, purplish within.

Hab. Barren River, Ky. Dr. Currey.

My Cabinet, and Cabinet of Dr. Currey.

Diam. .27,

Length .73 of an inch.

Remarks.—Two specimens of this species are before me, which I owe to the kindness of Dr. Currey of Nashville, after whom I name it. It is remarkable for its large and strong folds. It is without striæ, and the body whorl is smooth, except near to the suture. The aperture is about one-third the length of the shell. One of the specimens has quite a dark purple aperture, and the lip is thickened and reflexed. In these two specimens the ribs seem disposed to alternate in size.

MELANIA EDGARIANA. Plate 6, Fig. 37.

Testâ plicatâ, conoideâ, subtenui, striatâ, luteo-fuscâ; spirâ elevatâ; suturis irregulariter impressis; anfractibus octonis, subplanulatis; aperturâ parvâ, ellipticâ, infernè angulatâ, cœruleâ.

Shell folded, conical, rather thin, striate, yellowish brown; spire elevated; sutures irregularly impressed; whorls eight, rather flattened; aperture small, elliptical, angular below, bluish.

Hab. Cany Fork, Tenn. Mr. S. M. Edgar.

My Cabinet, and Cabinet of Mr. Edgar.

Diam. .29,

Length .77 of an inch.

Remarks.—I owe to Mr. Edgar's kindness several specimens of this pretty species, which I name after him. It is remarkable for being folded and transversely striate on all the whorls, except the lower part of the body whorl, which is striate only. The crossing of the folds and striæ give it a cancellated appearance. The aperture is rather more than one-fourth the length of the shell. The number of striæ on the body whorl is about ten.

MELANIA DECORA. Plate 6, Fig. 38.

Testâ plicatâ, turrito-acutâ, subtenui, corneâ, supernè striatâ; spirâ acutâ, elevatâ; suturis impressis; anfractibus novenis, subplanulatis; aperturâ parvâ, ellipticâ, albidâ.

Shell folded, acutely turrited, rather thin, horn colour, above striate; spire acute, elevated; sutures impressed; whorls nine, rather flattened; aperture small, elliptical, whitish.

Hab. Tenn. Dr. Troost.

“ Green River, Ky. Dr. Currey.

My Cabinet, and Cabinets of Dr. Troost and P. H. Nicklin.

Diam. .26,

Length .82 of an inch.

Remarks.—This species resembles *M. costulata*, herein described. It is, however, more elevated in the spire, and the folds are closer. On the two lower whorls the folds become obsolete.

MELANIA COSTULATA. Plate 6, Fig. 39.

Testâ plicatâ, conoideâ, subtenui, luteâ, supernè carinatâ; spirâ subproductâ; suturis impressis; anfractibus novenis, subconvexis; aperturâ parvâ, subovatâ, intus cœruleâ.

Shell folded, conical, rather thin, yellow, above carinate; spire rather elongated; sutures impressed; whorls nine, rather convex; aperture small, sub-ovate, within bluish.

Hab. Barren River, Ky. Dr. Currey.

“ Tenn. Dr. Troost.

My Cabinet, and Cabinets of Dr. Currey, Dr. Troost, and P. H. Nicklin.

Diam. .30,

Length .82 of an inch.

Remarks.—In its general characters this species resembles *M. laqueata*, Say. It may be distinguished in its being of less diameter and being more slender.

The specimens received from both Dr. Troost and Dr. Currey, were covered with a deposit of the oxide of iron, giving them a black hue. Under this the epidermis is yellow. The aperture is about one-third the length of the shell.

MELANIA NITENS. Plate 6, Fig. 40.

Testâ plicatâ, subcrassâ, tenebroso-fuscâ; spirâ obtusâ; suturis impressis; anfractibus septenis, subconvexis; aperturâ parvâ, ellipticâ, ad basim angulatâ, intus subrufâ.

Shell folded, somewhat thick, dark brown; spire obtuse; sutures impressed; whorls seven, somewhat convex; aperture small, elliptical, angular at the base, reddish within.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .30,

Length .76 of an inch.

Remarks.—This is a shining, dark brown species, with rather regular ribs on the superior whorls. The aperture is about one-third the length of the shell. A single specimen only was received.

MELANIA PLICATULA. Plate 6, Fig. 41.

Testâ plicatâ, conoidê, tenui, tenebroso-cornê; spirâ subelevatâ; suturis impressis, anfractibus octonis, subconvexis, supernè striatis; aperturâ parvâ, ellipticâ, ad basim subangulatâ, intus albidâ.

Shell folded, conical, thin, dark horn colour; spire rather elevated; sutures impressed; whorls eight, rather convex, striate above; aperture rather small, elliptical, at the base somewhat angular, within whitish.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinets of Dr. Troost, and Mr. Edgar.

Diam. .35,

Length .85 of an inch.

Remarks.—Dr. Troost and Mr. Edgar both procured this species from Tennessee, but their labels do not state the district. The ribs are numerous and close, and most individuals have two striæ above, which, crossing the ribs, produces a granulation. The mouth is about one-third the length of the shell.

MELANIA CONCINNA. Plate 6, Fig. 42.

Testâ plicatâ, turrîto-acutâ, subtenui, fuscâ; spirâ exsertâ; suturis impressis; anfractibus novenis, carinatis, planulatis; aperturâ parvâ, ellipticâ, ad basim angulatâ, intus albidâ.

Shell folded, acutely turrited, thin, brown; spire drawn out; sutures impressed; whorls nine, carinate, flattened; aperture small, elliptical, angular at the base, whitish.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .25,

Length .75 of an inch.

Remarks.—A single individual only was received from Dr. Troost. Its mouth is about one-fourth the length of the shell. It is remarkably flattened on the whorls, and the superior part is transversely striate.

SECTION III.—CARINATE MELANIÆ.

MELANIA BABYLONICA. Plate 6, Fig. 43.

Testâ carinatâ, turrîtâ, subcrassa; spirâ subelevatâ, propè apicem striatâ; suturis impressis; anfractibus septenis, supernè angulatis; aperturâ subgrandi, ellipticâ, albâ.

Shell carinate, turrited, rather thick; spire rather elevated, striate at the apex; sutures impressed; whorls seven, angular above; aperture rather large, elliptical, white.

Hab. Yellow Springs, Green Co., Ohio. T. G. Lea.

My Cabinet.

Diam. .36,

Length .78 of an inch.

Remarks.—A single specimen only of this shell has come under my notice. If the prominent character of this specimen, the large carina on the superior part of the whorls, be persistent, it marks a very distinct species. On the first four whorls, the striæ are well defined. On the remaining three the carina alone exists. The aperture is more than one-third the length of the shell.

MELANIA EXARATA. Plate 6, Fig. 44.

Testâ carinatâ, conica, subcrassâ, nigrâ; suturis exaratis; anfractibus planulatis, carinatis; aperturâ parvâ, ad basim angulatâ et canaliculatâ, intus tenebrôsâ.

Shell carinate, conical, rather thick, black; sutures rather deeply grooved; whorls flattened, carinate; aperture small, at the base angular and channelled, dark within.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .28,

Length .57 of an inch.

Remarks.—I received only two specimens of this species, both of which are decollated. It is perfectly distinct, and remarkable for its jetty hue, its carina, and its deeply impressed sutures, which are caused by the carina.

MELANIA POTOSIENSIS. Plate 6, Fig. 45.

Testâ carinatâ, conoideâ, subtenui, fuscâ; spirâ obtuso-elevatâ; suturis valdè impressis; anfractibus octonis, convexis; aperturâ magnâ, ovatâ, purpuratâ.

Shell carinate, conical, rather thin, brown; spire obtusely elevated; sutures much impressed; whorls eight, convex; aperture large, ovate, purplish.

Hab. Potosi, Missouri. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .28,

Length .62 of an inch.

Remarks.—The rotundity of the outer lip in this is different from the species generally, with the same elevation of spire. The aperture is more than one-third the length of the shell, and is entirely purple, in the only two specimens before me. In one specimen the carina is distinct on all the whorls but the last, in the other it is not visible on the last two whorls.

MELANIA ACUTO-CARINATA. Plate 6, Fig. 46.

Testâ carinatâ, conoideâ, subcrassâ, nitidâ, tenebroso-fuscâ; spirâ obtuso-elevatâ; suturis impressis; anfractibus senis; aperturâ subgrandi, ellipticâ, infernè angulatâ, intus purpuratâ.

Shell carinate, conical, rather thick, shining, dark brown; spire obtusely elevated; sutures impressed; whorls six; aperture rather large, elliptical, angular at base, purplish within.

Hab. Tenn. Dr. Currey.

My Cabinet, and Cabinet of Dr. Currey.

Diam. .30,

Length .66 of an inch.

Remarks.—I received a single specimen only of this species. It seems to be distinct in its large carina which extends over all the whorls, but it is scarcely distinct on the last. The columella is remarkably indented. The aperture is nearly one-half the length of the shell.

MELANIA WARDERIANA. Plate 6, Fig. 47.

Testâ carinatâ, clavæformi, subcrassâ, tenebrosâ; spirâ conicâ; suturis linearibus; anfractibus octonis, convexis; aperturâ ovata, subgrandi, intus carneâ.

Shell carinate, club-shaped, rather thick, very dark; spire conical; sutures linear; whorls eight, convex; aperture ovate, rather large, within flesh-colour.

Hab. Cedar Creek, a branch of Clinch River, Russell County. Virginia.
J. A. Warder, M. D.

My Cabinet, and Cabinets of Dr. Warder, and T. G. Lea.

Diam. .37, Length .76 of an inch.

Remarks.—I have two specimens before me. The two lowest whorls are smooth. The superior ones are carinate, with a small intermediate stria. The upper whorls diminish very rapidly. The exterior of the shell is nearly black and shining, and its colour appears to arise from a deposit of ferruginous matter, as the substance of the shell is reddish. The aperture is rather more than one-third the length of the shell. I name it after Dr. Warder of Cincinnati, to whom I owe the possession of this and other interesting specimens.

SECTION IV.—SULCATE MELANIÆ.

MELANIA SULCOSA. Plate 6, Fig. 48.

Testâ transversè sulcatâ, conoideâ, crassâ, luteolâ; suturis impressis; anfractibus planulatis; aperturâ parvâ, ovatâ, albidâ.

Shell transversely sulcate, conical, thick, yellowish; sutures impressed; whorls flattened; aperture small, ovate, whitish.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .32, Length . of an inch.

Remarks.—A single specimen only, and that imperfect, is before me. The body whorl has seven or eight distinctly marked striæ. On the penultimate there are three, and these give a sulcate appearance to the shell.

SECTION V.—STRIATE MELANIA.

MELANIA STRIATA. Plate 6, Fig. 49.

Testâ striatâ, conoideâ, subtenui, tenebroso-fuscâ, supernè carinatâ; spirâ subelevatâ; suturis impressis; anfractibus octonis, convexis; aperturâ parvâ, ellipticâ, intus subrufâ.

Shell striate, conical, rather thin, dark brown, carinate above; spire somewhat elevated; sutures impressed; whorls eight, convex; aperture small, elliptical, within reddish.

Hab. Tennessee. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .21,

Length .49 of an inch.

Remarks.—Rather a small species of a dark reddish brown. In some individuals the folds are numerous.—In others the striæ predominate and cover nearly all the whorls. The aperture is rather more than one-third the length of the shell.

MELANIA PILULA. Plate 6, Fig. 50.

Testâ striatâ, subglobosâ, crassâ, tenebroso-fuscâ; suturis subimpressis; anfractibus convexis; aperturâ ovatâ, magnâ, infrâ subangulatâ, intus purpuratâ.

Shell striate, subglobose, thick, dark brown; sutures somewhat impressed; whorls convex; aperture ovate, large, angular at the base, within purplish.

Hab. Tennessee. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .34,

Length .43 of an inch.

Remarks.—This is a very distinct species, and is quite as globose as *M. subglobosa*, Say. Two specimens were received, the spires of which are not perfect. I should presume, that when perfect, they would be found to have four whorls. The raised striæ are very distinct, and consist of eighteen in

these two individuals. The aperture is about half the length of the shell. One specimen is dark purple within the aperture.—The other is bluish, with a tinge of purple on the columella.

MELANIA CIRCINCTA. Plate 6, Fig. 51.

Testâ supernè striatâ, turritâ, subtenui, pallido-luteâ, fasciata; spirâ exsertâ; suturis parvis; anfractibus novenis, subconvexis, in medio carinatis; aperturâ subparvâ, ellipticâ, ad basim angulatâ intus albâ.

Shell striate above, turritid, rather thin, pale yellow, banded; spire drawn out; sutures small; whorls nine, slightly convex, carinate in the middle; aperture rather small, elliptical, angular at the base, and white within.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .35,

Length .90 of an inch.

Remarks.—This beautiful species is peculiar for its pale yellow ground and broad band, which is placed immediately upon the carina. A very indistinct band may be observed below the carina, where in some individuals may also be observed a few striæ. In some, the striæ on the superior part of the shell are accompanied by indistinct ribs.

SECTION VI.—TUBERCULATE MELANIÆ.

MELANIA VENUSTA. Plate 6, Fig. 52.

Testâ supernè subtuberculatâ, fusiformi, subtenui, luteolâ; spirâ subobtusâ; suturis rugoso-impressis; anfractibus senis, convexis; aperturâ productâ, ad basim angulatâ et canaliculatâ, intus albidâ.

Shell disposed to be tuberculate, fusiform, somewhat thin, yellowish above; spire rather obtuse; sutures roughly impressed; whorls six, convex; aperture elongated, at the base angulated and channelled, within whitish.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .43,

Length .80 of an inch.

Remarks.—Dr. Troost sent me a single specimen of this species which is very distinct. The columella is very much thickened, particularly above, in which it resembles the genus *Melanopsis*. The aperture is rather more than half the length of the shell. In this specimen a single obscure band may be observed within, close to the base of the columella.

MELANIA FLORENTIANA. Plate 6, Fig. 53.

Testâ tuberculatâ, ellipticâ, ponderosâ, pallidâ; spirâ obtusâ; suturis impressis; anfractibus senis, subconvexis; aperturâ productâ, albidâ.

Shell tuberculate, elliptical, ponderous, pale; spire obtuse; sutures impressed; whorls six, slightly convex; aperture elongated, whitish.

Hab. Tennessee River, Florence, Alabama. T. R. Dutton.

My Cabinet, and Cabinet of Mr. Dutton.

Diam. .47,

Length .87 of an inch.

Remarks.—An elliptical species resembling the *M. olivula*, Conrad. Its aperture is so much elongated as to be more than half the length of the shell. Three of the specimens are without bands, a fourth has several very indistinct ones. The whorls are somewhat flattened on the superior part and are disposed to be tuberculated below the sutures. In the young the tubercles are more distinct. In some of the adult specimens they are entirely wanting.

MELANIA DUTTONIANA. Plate 6, Fig. 54.

Testâ tuberculatâ, fusiformi, subcrassâ, luteolâ, fasciatâ; spirâ elevatâ, ad apicem acutâ; suturis enormiter lineatis; anfractibus septenis, supernè depressis; aperturâ productâ, ad basim angulatâ et canaliculatâ, intus albidâ.

Shell tuberculate, fusiform, rather thick, yellowish, banded; spire elevated, pointed at the apex; sutures irregularly lined; whorls seven, depressed above; aperture elongated, angular and channelled at the base, within whitish.

Hab. Waters of Tennessee. Dr. Troost. Duck River, Maury Co., Tenn.
T. R. Dutton.

My Cabinet, and Cabinets of Prof. Troost and Mr. Dutton.

Diam. .57,

Length 1.09 of an inch.

Remarks.—This is a beautiful species. The most perfect specimens are remarkable for their fusiform shape and their long aperture, which presents a curved columella and extended sinus somewhat like the genus *Io*. The bands in some individuals are numerous and distinct, the largest being nearest the base. The tubercles form a row round the middle of the whorls of most specimens, but in some, though rarely, this part is carinate or rounded. Some are slightly tuberculated below the suture. Among the young specimens some are costate near the apex, others entirely smooth and without bands. I owe the fine specimen figured to Mr. Dutton, after whom I name it.

SECTION VII.—GRANULATE MELANIÆ.

MELANIA HOLSTONIA. Plate 6, Fig. 55.

Testâ granosâ, conoideâ, subcrassâ, nigrâ; spirâ subelevatâ; suturis impressis; anfractibus supernè planulatis; aperturâ ovatâ, purpureâ.

Shell grained, conical, somewhat thick, black; spire somewhat elevated; sutures impressed; whorls flattened above; aperture ovate, purple.

Hab. Tenn. Dr. Troost. Holston River, Tenn. Mr. S. M. Edgar.

My Cabinet, and Cabinets of Dr. Troost and Mr. Edgar.

Diam. .38,

Length .79 of an inch.

Remarks.—A very distinct species with four series of small, rather sharp elevations round the whorls, the two inferior ones rather indistinct. Only two specimens have come under my notice, and both have the apex decollated.

SECTION VIII.—CANCELLATE MELANIÆ.

MELANIA CALIGINOSA. Plate 6, Fig. 56.

Testâ cancellatâ, conoideâ, subcrassâ, transversè striatâ, tenebroso-fuscâ; spirâ elevatâ; suturis enormiter impressis; anfractibus octonis, subconvexis; aperturâ parvâ, ellipticâ, intus purpuratâ.

Shell cancellate, conical, somewhat thick, transversely striated, very dark brown; spire elevated; sutures irregularly impressed; whorls eight, rather convex; aperture small, elliptical, purplish within.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinets of Dr. Troost and P. H. Nicklin.

Diam. .34,

Length .91 of an inch.

Remarks.—A fine cancellate species with ten or eleven revolving striæ on the body whorl, crossing the folds. The aperture is about one-third the length of the shell. It nearly answers to Mr. Conrad's description of *M. nassula*, but has five striæ on the penultimate whorl while the *nassula* has seven. It differs from *M. catenaria*, Say, in having a more elevated spire, and in having two or three more revolving striæ. In some individuals the aperture is bluish white.

MELANIA NODULOSA. Plate 6, Fig. 57.

Testâ cancellatâ, conoideâ, crassâ, tenebroso-fuscâ; suturis enormiter impressis; anfractibus subconvexis; aperturâ subgrandi, ellipticâ, infra subangulatâ, intus cœruleâ.

Shell cancellate, conical, thick, dark brown; sutures irregularly impressed; whorls somewhat convex; aperture rather large, elliptical, subangular below, within bluish.

Hab. Tenn. Dr. Troost.

My Cabinet, and Cabinet of Dr. Troost.

Diam. .34,

Length .82 of an inch.

Remarks.—Two imperfect specimens only were received from Dr. Troost, and both are much eroded at the apex, consequently the number of whorls could not be ascertained. The body whorl has about twenty well defined raised striæ, which on the superior part are crossed by folds causing numerous elevated points, giving the whole of the upper part of the shell a granulate appearance. It is somewhat like *M. catenaria*, Say, but may be distinguished at once by the number of striæ.

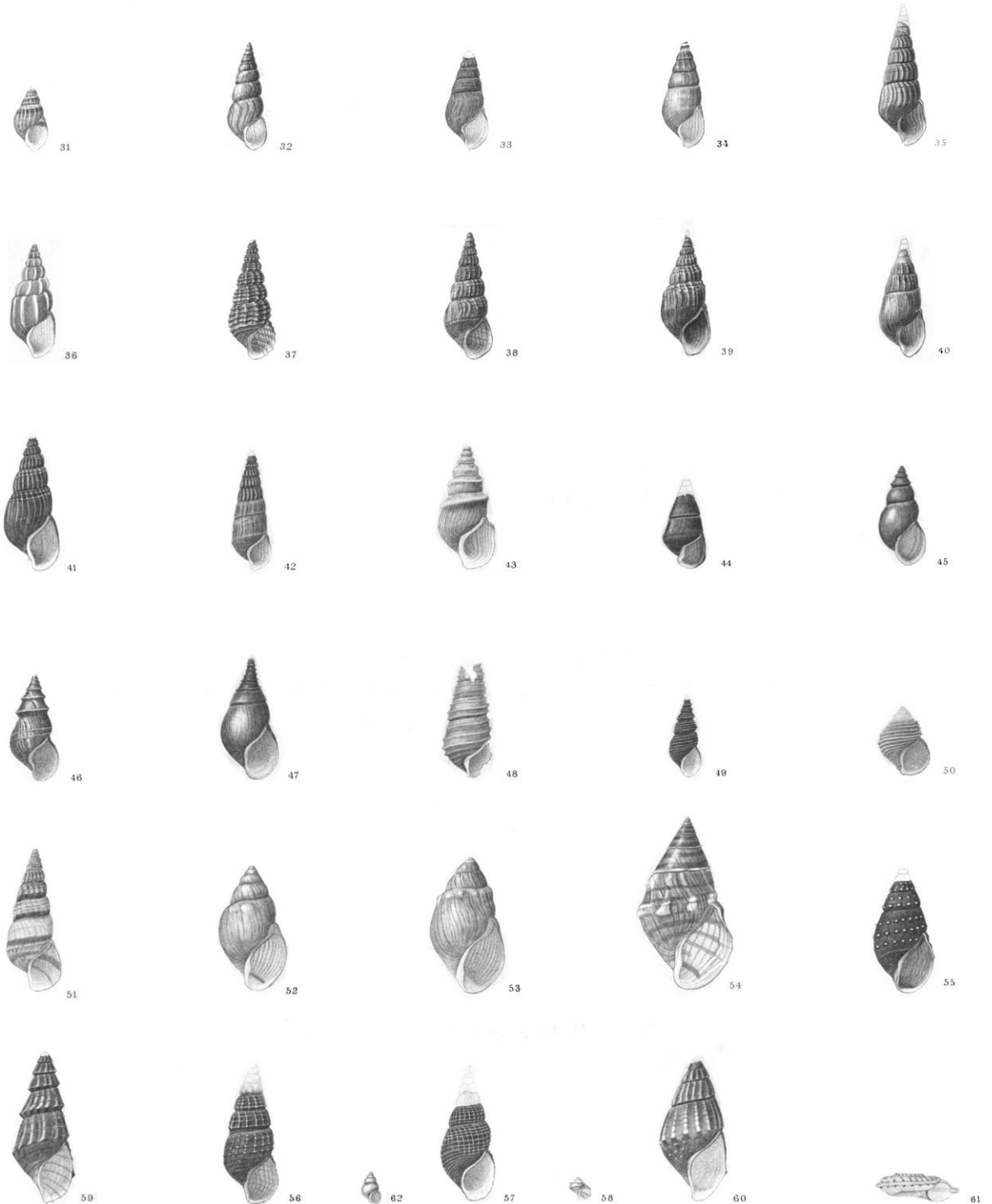
Read December 21st, 1838.

MELANIA CINCINNATIENSIS. Plate 6, Fig. 58.

Testâ carinatâ, valdè depressâ, infernè compressâ, fuscâ, trifasciatâ, bicarinatâ, apice acuminatâ; anfractibus quaternis; aperturâ subrotundâ.

Shell carinate, much depressed, below compressed, brown, three-banded, with two carinæ, pointed at the apex; whorls four; aperture rounded.

MELANIA &c.



31 *M. monoxonalis*..
 32 .. *terebialis*.....
 33 .. *columella*.....
 34 .. *blanda*.....
 35 .. *crebri-costata*..
 36 .. *Curreyana*.....
 37 .. *Edgariana*.....
 38 .. *decora*.....

39 *M. costulata*.....
 40 .. *nitens*.....
 41 .. *plicatula*.....
 42 .. *concinna*.....
 43 .. *Babylonica*.....
 44 .. *exarata*.....
 45 .. *Potosiensis*.....
 46 .. *acuto-carinata*.....

47 *M. Warderiana*..
 48 .. *sulcosa*.....
 49 .. *striata*.....
 50 .. *pilula*.....
 51 .. *circincta*.....
 52 .. *venusta*.....
 53 .. *Florentiana*.....
 54 .. *Duttoniana*.....

55 *M. Holstonia*.....
 56 .. *caliginosa*.....
 57 .. *nodulosa*.....
 58 .. *Cincinnatiensis*..
 59 .. *Boykiniana*.....
 60 .. *catenoides*.....
 61 .. *Carocolla Cumberlandiana*..
 62 .. *Cyclostoma Cincinnatiense*.....

Hab. Near Cincinnati, Ohio. T. G. Lea.

My Cabinet, and Cabinet of T. G. Lea.

Diam. .14,

Length .16 of an inch.

Remarks.—This is a very minute species recently taken in the vicinity of Cincinnati,* by my brother T. G. Lea. It is very remarkable for its roof-shaped spire, and two carinæ, which are coloured.

Read October 2d, 1840.

WHEN I presented my last paper on the family *Naiades* to the society, I considered that but few species remained to be described, and I intended to have turned my attention almost exclusively to the anatomical structure of the various species attainable. Circumstances have disappointed this intention, and the number of new species has, owing to the kind attention of many friends, increased upon my hands far beyond my expectations. Descriptions of these are now made out, and many of them will be found of great interest to the student of this branch of Zoology.

UNIO EXIGUUS. Plate 7, Fig. 1.

Testâ ellipticâ, subcompressâ; valvulis tenuibus; natibus subprominentibus; epidermide tenebrosâ, virido-radiatâ, politâ; dentibus cardinalibus lamellatis; lateralibus longis subcurvisque; margaritâ cœruleâ et iridescente.

Shell oval, rather compressed; valves thin; beaks somewhat prominent; epidermis dark, with green rays, polished; cardinal teeth lamellar; lateral teeth long and somewhat curved; nacre blue and iridescent.

Hab. Chatahochee River, Columbus, Georgia. Dr. Boykin.

My Cabinet.

Diam. .6,

Length .1,

Breadth 1.7 of an inch.

* More recently found by Dr. Troost in the Holston, Tennessee.

Shell oval, rather compressed; substance of the shell very thin and transparent; beaks somewhat prominent; ligament long and thin; epidermis polished, dark, the whole disk being nearly covered with deep green rays; cardinal teeth lamellar, erect, pointed; lateral teeth long, lamellar and somewhat curved; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed across the cavity of the beaks; cavity of the shell shallow; cavity of the beaks shallow and somewhat angular; nacre blue and very iridescent behind.

Remarks.—This species is nearly allied to *U. iris* (nobis.) Like it, it has numerous green rays passing over the whole disk, more dense on the posterior portion. It differs in being less transverse and being apparently without undulations at the beaks, those of the *iris* being remarkable. The cardinal tooth in the left valve is but slightly cleft, and the anterior portion is more elevated and pointed.

UNIO CUCUMOIDES. Plate 7, Fig. 2.

Testâ plicatâ, emarginatâ, latissimâ, subcylindraceâ; valvulis subcrassis; natibus vix prominentibus; epidermide nigrâ; dentibus cardinalibus parvis, tuberculatis; lateralibus longissimis rectisque; margaritâ albâ.

Shell folded, emarginate, very broad, somewhat cylindrical; valves rather thick; beaks scarcely prominent; epidermis black; cardinal teeth small, tuberculate; lateral teeth very long and straight; nacre white.

Hab. Hunter's River, New South Wales. Dr. Jay.

Cabinet of Dr. Jay.

Diam. 1.4,

Length 2.2,

Breadth 5.5 inch.

Shell folded over the posterior half, emarginate at base, very broad, somewhat cylindrical, subbiangular behind; folds small and numerous; substance of the shell rather thick, thinner behind; beaks scarcely prominent and placed near to the anterior margin; ligament very long and thick; epidermis black; cardinal teeth small, tuberculate; lateral teeth very long and straight; anterior cicatrices confluent; posterior cicatrices confluent; dorsal cicatrices placed in a row across the centre of the cavity of the beaks; cavity of the shell deep and rounded; cavity of the beaks very small; nacre white.

Remarks.—This is among the most remarkable species of *Unio* which have come under my notice. It resembles *U. monodontus*, (Say) in outline as well as in the imperfection of the cardinal and lateral teeth, both of which, however, are more perfect in the *U. cucumoides*. In the specimen before me there is a deep muscular impression above and distinct from the great anterior cicatrix. This is nearly round and penetrates the base of the cardinal tooth. It may be that it is formed by a branch of the anterior adductor muscle. An examination of the animal only can decide this point. In the above description it will be observed that the anterior cicatrices are described as being confluent. This alludes to the cicatrices of the adductor muscle and the muscle of locomotion as usual. The third cicatrix of the anterior part is now, I believe, for the first time observed. The dorsal and basal margin are nearly parallel. The nacre is stained with epidermal matter as it usually is in shells of this form.

This specimen was kindly lent to me for description by Dr. Jay, who received but a single one from Sidney, New South Wales. In its general form and tuberculate exterior it resembles a cucumber.

UNIO CUNEOLUS. Plate 7, Fig. 3.

Testâ triangulari, compressâ, valdè inæquilaterali; valvulis subcrassis; natibus elevatis; epidermide luteâ, striatâ, radiis maculatis; dentibus cardinalibus parvis; lateralibus longis rectisque; margaritâ albâ et iridescente.

Shell triangular, compressed, very inequilateral; valves rather thick; beaks elevated; epidermis yellow, striate, with spotted rays; cardinal teeth small; lateral teeth long and straight; nacre white and iridescent.

Hab. Holston River, Tenn. Mr. S. M. Edgar.

My Cabinet, and Cabinets of Mr. Edgar and Dr. Currey.

Diam. .6, Length 1, Breadth 1.4 inches.

Shell triangular, compressed, flattened on the sides, very inequilateral; substance of the shell thick before, thinner behind; beaks elevated; ligament short and thin; epidermis yellow, striate, with numerous green interrupted rays over the whole disk; cardinal teeth small, single in the right valve and double in the left; lateral teeth long and straight; anterior cicatrices distinct; posterior cicatrices distinct; dorsal cicatrices placed on the under side of the cardinal

tooth, cavity of the shell small: cavity of the beak angular and rather deep; nacre white and very iridescent.

Remarks.—I have before me two specimens of this species brought by Mr. Edgar from Tennessee. In form and size it approaches the *U. Barnesianus* (nobis,) but is more triangular, more flattened on the sides and has the marks of growth closer.

UNIO CINCINNATIENSIS. Plate 8, Fig. 4.

Testâ nodosâ, quadratâ, inflatâ, emarginatâ, inæquilaterali; valvulis crassis; natibus elevatis; epiderdime luteâ, valdè radiatâ; dentibus cardinalibus subgrandibus; lateralibus sublongis rectisque; margaritâ albâ.

Shell nodulous, quadrate, inflated, emarginate, inequilateral; valves thick; beaks elevated; epidermis yellow, much rayed; cardinal teeth rather large; lateral teeth rather long and straight; nacre white.

Hab. Ohio River at Cincinnati. T. G. Lea.

My Cabinet, and Cabinet of T. G. Lea.

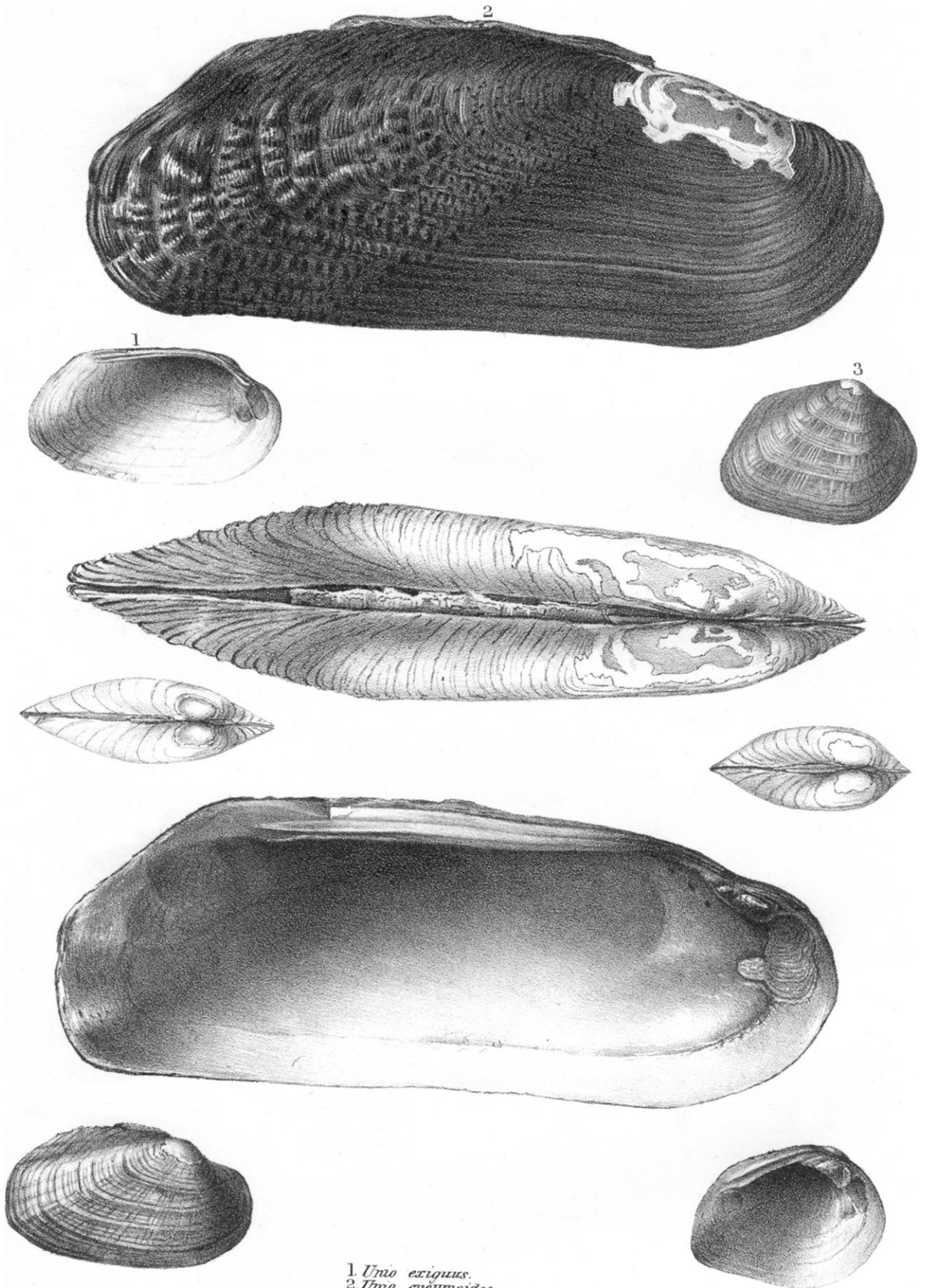
Diam. 1.2,

Length 1.5,

Breadth 1.9 inches.

Shell with a row of nodules from the beak to the basal margin, quadrate, inflated, emarginate at basal and posterior margins, inequilateral; substance of the shell very thick, thinner before; beaks large and elevated; ligament short and thin; epidermis yellow, with numerous green capillary rays over the whole disk; cardinal teeth rather large, double in both valves; lateral teeth rather long, thick and straight; anterior cicatrices distinct; posterior cicatrices confluent: dorsal cicatrices placed on the under side of the cardinal tooth; cavity of the shell rather deep; cavity of the beak small and angular; nacre milky white.

Remarks.—This is a very rare species. A very imperfect specimen was sent to me by my brother more than ten years since. I then thought that it might be a variety of the species which I afterwards called *U. perplexus*. Since then I have seen seven specimens, and their constant difference from the *perplexus* clearly marks their specific distinction. It is very closely allied to another species described by Mr. Conrad under the name of *U. Phillipsii*. It differs from it, however, in having the tubercles in a more regular manner arranged over the medial part of the disk.



1. *Unio exiguus*.
 2. *Unio cucumoides*.
 3. *Unio cuneolus*.

J.T. French del.

Sinclair's Lith. Phil^a

The rays are so numerous in some specimens as to give a dark green hue to the whole disk, except at the anterior margin, where it is always more or less yellow. The umbonial slope is elevated, and in some individuals disposed to be tuberculate.

UNIO STONENSIS. Plate 8, Fig. 5.

Testâ ellipticâ, valdè compressâ, planulatâ, valdè inæquilaterali; valvulis crassis; natibus prominulis, ad apices undulatis; epidermide luteo-fuscâ; dentibus cardinalibus parvis; lateralibus longis, crassis curvisque; margaritâ salmonis colore tinctâ et iridescente.

Shell oval, very much compressed, flat-sided, very inequilateral; valves thick; beaks slightly prominent, undulated at the tip; epidermis yellowish-brown; cardinal teeth small; lateral teeth long, thick and curved; nacre salmon-coloured and iridescent.

Hab. Stone's River, Tenn. S. M. Edgar.

My Cabinet.

Diam. .1, Length 1.9, Breadth 3.3 inches.

Shell oval, very much compressed, flat-sided, very inequilateral; biangular behind; substance of the shell thick; beaks slightly prominent and minutely undulate at tip; ligament long and thick; epidermis yellowish-brown, roughly striate; cardinal teeth small, striate, lobed; lateral teeth long, curved and thick; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed in a row behind the cardinal tooth; cavity of the shell very shallow; cavity of the beaks scarcely perceptible; nacre salmon-coloured and iridescent.

Remarks.—This fine shell seems to be pretty closely allied to *U. gibbosus*, Barnes. It is, however, a less transverse species, more compressed and more equilateral. The nacre is very fine and in this specimen salmon-coloured,—this tint may not prove to be permanent. Having but a single specimen before me, I am unable to say whether it occurs rayed. This individual is entirely without rays. The transverse striæ are rough.

UNIO LESUEURIANUS. Plate 8, Fig. 6.

Testâ subrotundâ, subinflatâ; valvulis crassis; natibus prominentibus; epidermide fuscâ, striatâ, radios maculatos habente; dentibus cardinalibus subgrandibus; lateralibus parvis rectisque; margaritâ albâ et iridescente.

Shell nearly round, somewhat inflated; valves thick; beaks prominent; epidermis brown, striate with spotted rays; cardinal teeth rather large; lateral teeth small and straight; nacre white and iridescent.

Hab. Cany Fork and Holston Rivers, Tenn. S. M. Edgar.

My Cabinet, and Cabinet of Mr. Edgar.

Diam. .7, Length 1.3, Breadth 1.5 inches.

Shell nearly round, somewhat inflated; substance of the shell thick, thinner behind; beaks prominent; ligament rather long and thin; epidermis brown, striate, with several interrupted rays over the umbones; lines of growth approximate; cardinal teeth rather large, single in the right and double in the left valve; lateral teeth small and straight; anterior cicatrices distinct; posterior cicatrices distinct; dorsal cicatrices placed under the cardinal tooth; cavity of the shell rather deep and rounded; cavity of the beaks deep and angular; nacre white and iridescent.

Remarks.—Two specimens only of this species were brought by Mr. Edgar. It seems to be most nearly allied to *U. subrotundus* (nobis;) but differs in the rays, in being less polished, in being less inflated and particularly in having the marks of growth more approximate, and more numerous.

I name this shell after the distinguished naturalist and companion of Peron, my old friend C. A. Lesueur.

UNIO DACTYLUS. Plate 9, Fig. 7.

Testâ transversâ, subinflatâ; valvulis tenuibus; natibus prominulis; epidermide luteâ; dentibus cardinalibus minimis, erectisque; lateralibus longis subcurvisque; margaritâ albâ et iridescente.

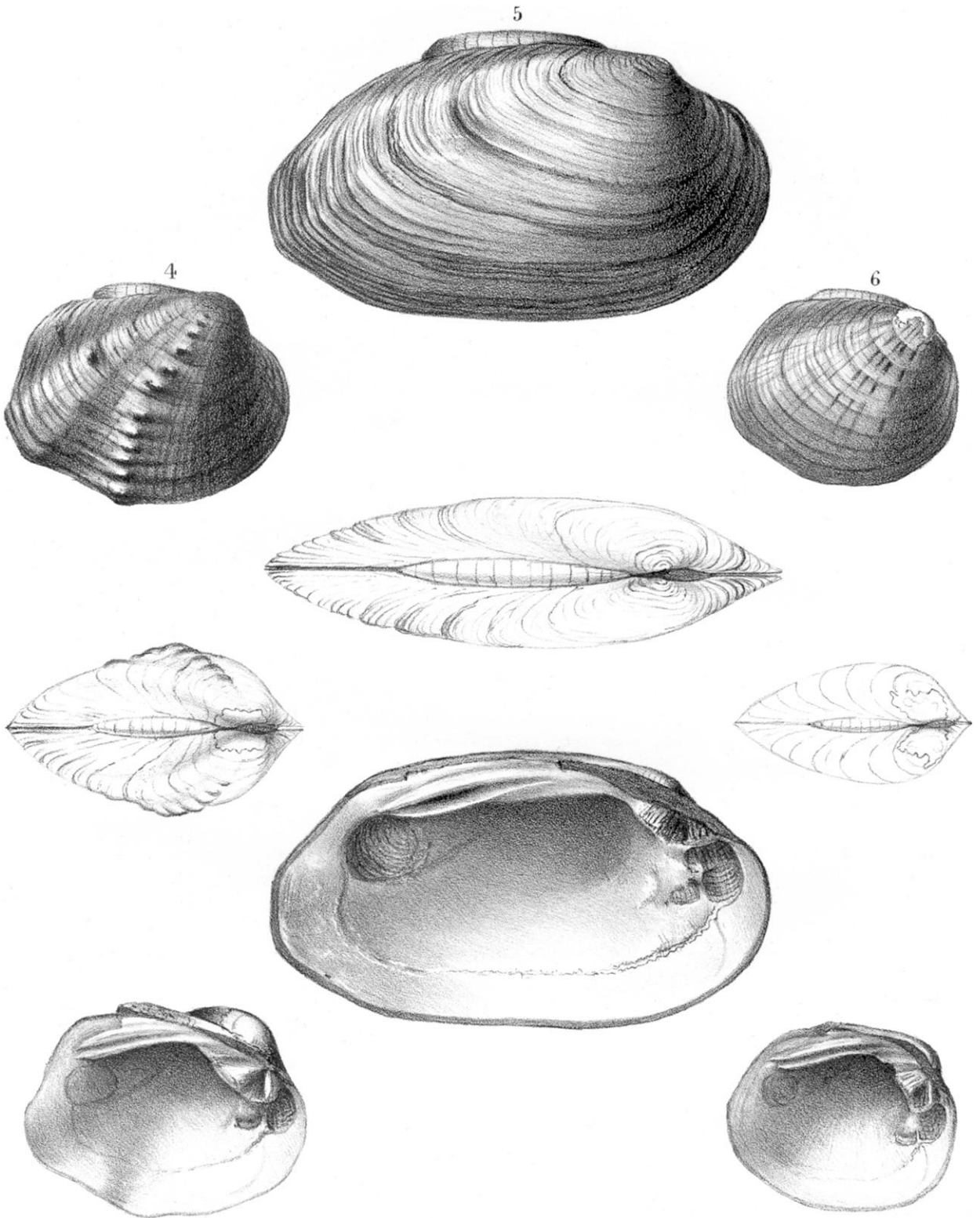
Shell transverse, rather inflated; valves thin; beaks somewhat prominent; epidermis yellow; cardinal teeth very small and erect; lateral teeth long and rather curved; nacre white and iridescent.

Hab. Cany Fork River, Tenn. S. M. Edgar.

My Cabinet, and Cabinet of Mr. Edgar.

Diam. .6, Length .1, Breadth 1.9 inches.

Shell triangular, inflated, narrow-elliptical; substance of the shell thin, thicker before; beaks somewhat prominent; ligament rather long and thin; epidermis yellow; umbonial slope rounded; cardinal teeth very small, erect, pointed in the left valve, the anterior lobe being much the highest; lateral teeth long and rather curved; anterior cicatrix distinct; posterior cicatrix con-



4. *Unio Cincinnatiensis*.
 5. *Unio Stonensis*.
 6. *Unio Lesueurianus*.

fluent; dorsal cicatrix placed in the centre of the cavity of the beaks; cavity of the shell rather deep and rounded; cavity of the beaks very shallow; nacre white and very iridescent at the posterior margin.

Remarks.—A single specimen only of this shell came in the collection from Mr. Edgar. It has no remarkable characteristics, yet it cannot be referred to any species known to me. It has some resemblance to *U. pictorum*, Lam., and is somewhat like *U. lanceolatus* (nobis,) but may be easily distinguished from both these species. I presume it is always without rays,—the individual before me having no trace of them.

UNIO BIANGULATUS. Plate 9, Fig. 8.

Testâ obovatâ, inflatâ, posticè biangulari; valvulis tenuibus; natibus subprominentibus; epidermide tenebroso-fuscâ; radiatâ; dentibus cardinalibus subgrandibus, elevatis; lateralibus subgrandibus curvisque; margaritâ albâ et iridescente.

Shell obovate, inflated, biangular behind; valves thin; beaks rather prominent; epidermis dark brown, rayed; cardinal teeth rather large, elevated; lateral teeth rather large and curved; nacre white and iridescent.

Hab. Cany Fork River, Tenn. Prof. Troost and Mr. S. M. Edgar.
My Cabinet, and Cabinets of R. O. Currey, M. D., Mr. Edgar and Prof. Troost.
Diam. 1.2, Length 1.8, Breadth 2.8 inches.

Shell obovate, inflated, biangular behind; substance of the shell thin, thicker before; beaks rather prominent, approximating the anterior margin; ligament rather long and thick; epidermis dark brown, sometimes yellowish, with indistinct interrupted rays on the posterior portion; umbonal slope subangular; posterior slope with an imperfect fold which makes a second angle; cardinal teeth rather large, erect, pointed, double in the left valve and single in the right; lateral teeth rather large and curved, lamellar near the termination; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices large and placed on the upper side of the cavity of the beaks; cavity of the shell large; cavity of the beaks rather deep and angular; nacre white and iridescent.

Remarks.—When the specimen is entirely perfect, the double angle of the posterior margin marks this shell very distinctly. It has some resemblance to

a young *U. perdix* (nobis.) The nacre is very pearly and very thin, leaving a broader margin than usual. Three specimens out of four before me have interrupted rays indistinctly painted on the posterior part of the shell.

UNIO STRIGOSUS. Plate 9, Fig. 9.

Testâ transversâ, compressâ, valdè inæquilaterali, posticè biangulatâ; valvulis subtenuibus; natibus subprominentibus, compressis; epidermide tenebroso-fuscâ; dentibus cardinalibus parvulis; lateralibus longis subrectisque; margaritâ purpureâ et iridescente.

Shell wide, compressed, very inequilateral, biangular behind; valves rather thin; beaks somewhat prominent, compressed; epidermis dark brown; cardinal teeth very small; lateral teeth long and nearly straight; nacre purple and iridescent.

Hab. Chattahoochee River, Columbus, Georgia. Dr. Boykin.

My Cabinet.

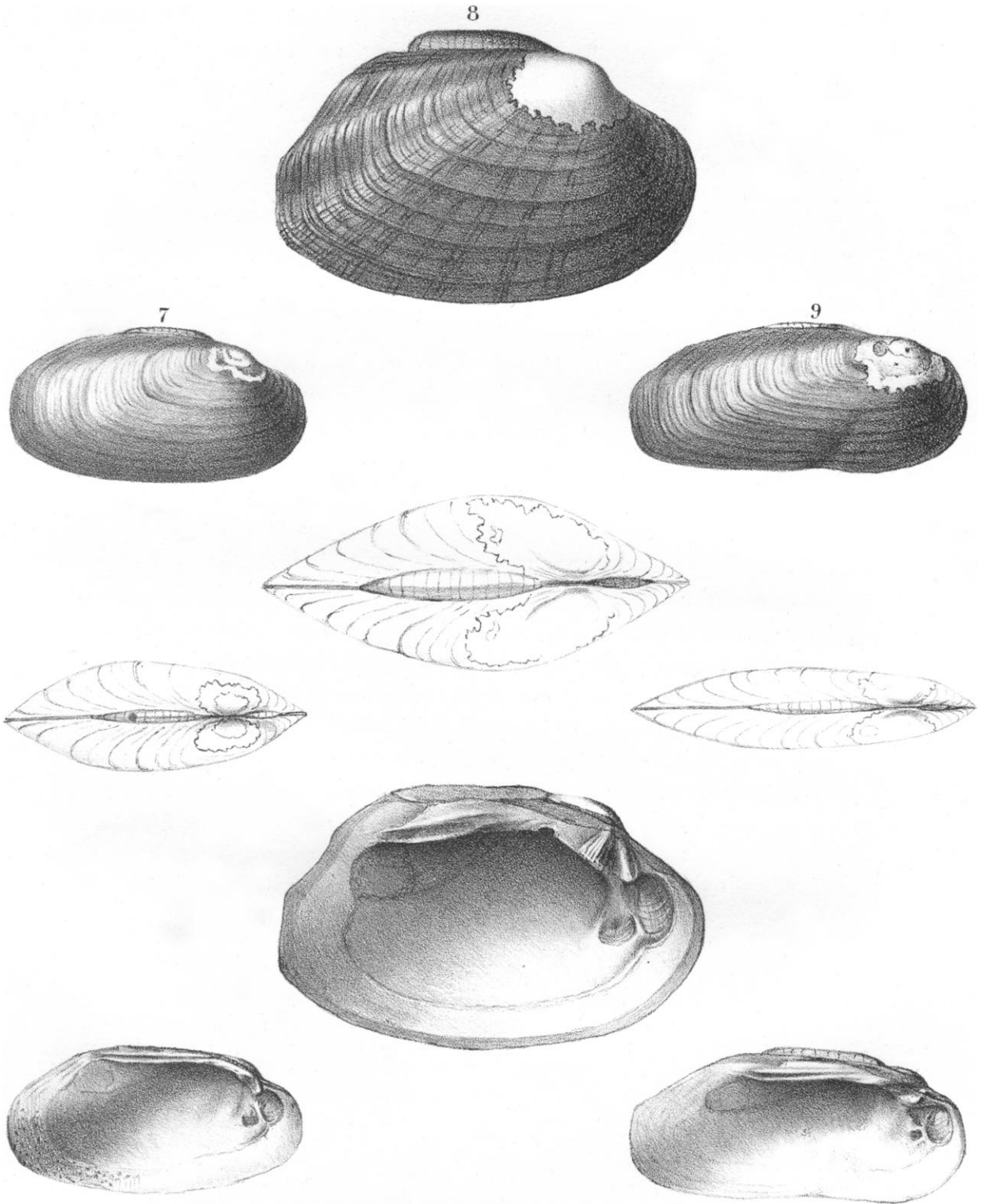
Diam. .5, Length .1, Breadth 2.2 inches.

Shell wide, compressed, very inequilateral, biangular behind; substance of the shell rather thin; beaks somewhat prominent, compressed; ligament long and thin; epidermis dark brown; cardinal teeth very small and lobed; lateral teeth long and nearly straight; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed on the plate over the cavity of the beaks; cavity of the shell very shallow; cavity of the beaks scarcely perceptible; nacre purple and iridescent.

Remarks.—This species belongs properly to the group of which the *U. complanatus*, Soland, is the type. In outline it resembles *U. angustatus* (nobis,) but is a more compressed species. Two individuals only were received, one of which is nearly white in the nacre. The cardinal teeth are remarkably small, and, in the oldest specimen, stand nearly in the direction of the lateral teeth.

UNIO TENER. Plate 10, Fig. 10.

Testâ ellipticâ, valdè compressâ, valdè inæquilaterali; valvulis tenuibus; natibus subprominentibus; epidermide luteo-fuscâ; dentibus cardinalibus parvis; lateralibus longis subcurvisque; margaritâ albâ et iridescente.



7. *Unio dactylus*.
8. *Unio biangulatus*.
9. *Unio strigosus*.

Shell elliptical, much compressed, very inequilateral; valves thin; beaks rather prominent; epidermis yellowish brown; cardinal teeth small; lateral teeth long and rather curved; nacre white and iridescent.

Hab. Big Pigeon River, Tenn. S. M. Edgar.

My Cabinet.

Diam. .7, Length 1.3, Breadth 2.1 inches.

Shell elliptical, much compressed, very inequilateral, subbiangulate behind; substance of the shell thin, thicker before; beaks rather prominent; ligament long and thin; epidermis yellowish brown and obscurely rayed; cardinal teeth small, single in the right and double in the left valve; lateral teeth long and rather curved; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed under the plate between the lateral and cardinal teeth; cavity of the shell very shallow; cavity of the beaks very shallow and angular; nacre white and very iridescent on the posterior part.

Remarks.—A single specimen only of this species was taken by Mr. Edgar. In outline it nearly resembles *U. radiatus*, but is a thinner and flatter shell and with very indistinct rays.



UNIO TENNESSEENSIS. Plate 10, Fig. 11.

Testâ ellipticâ, transversâ, inflatâ; valvulis crassis; natibus subprominentibus; epidermide luteâ; dentibus cardinalibus magnis erectisque; lateralibus magnis subcurvisque; margaritâ albâ et iridescente.

Shell elliptical, wide, inflated; valves thick; beaks rather prominent; epidermis yellow; cardinal teeth large and erect; lateral teeth large and somewhat curved; nacre white and iridescent.

Hab. Stone's River, Tenn. S. M. Edgar.

My Cabinet.

Diam. 1.3, Length 1.9, Breadth 3 inches.

Shell elliptical, wide, inflated, more full over the umbonial slope; substance of the shell thick, thinner on the posterior portion; beaks rather prominent; ligament rather long; epidermis yellow, without rays, and coarsely wrinkled; umbonial slope very round; cardinal teeth large, erect, pointed, double in the left valve and single in the right; lateral teeth large, rather long, slightly curved and separated from the cardinal teeth; anterior cicatrices distinct; posterior cicatrices distinct; dorsal cicatrices large and placed in the centre of the cavity

of the beaks; cavity of the shell deep and rounded; cavity of the beaks small; nacre very white and iridescent at the posterior portion.

Remarks.—This is remarkable for its perfectly elliptical margin, its white nacre and roundness of the umbonial slope. It has somewhat the aspect of *U. stramineus* (Conrad) but differs from it in being a more perfect ellipse, in having less polish, and in the wrinkles being larger and more regular. It was taken by Mr. Edgar in Stone's River near Nashville, and I owe to that gentleman's kindness the specimen described.—The beaks in this are eroded, but they are perfect enough to present an appearance of radiate folds diverging from the tip of the beaks, like *U. delodontus* Lam. (*lacteolus*, Lea, Trans. Am. Phil. Soc. Vol. 5, page 8, Fig. 19,) and other South American species. Should these folds be found really to exist, when perfect specimens are had, this species will exhibit the only case yet observed among our *Uniones* with that character which is so common to those of South America.

UNIO AMÆNUS. Plate 10, Fig. 12.

Testâ ellipticâ, subcompressâ, valdè inæquilaterali; valvulis subcrassis; natibus subprominentibus; epidermide tenebrosâ, densè radiatâ; dentibus cardinalibus parvis, erectisque; lateralibus longis subcurvisque; margaritâ albâ et iridescente.

Shell elliptical, somewhat compressed, very inequilateral; valves rather thin; beaks somewhat prominent; epidermis dark, very much radiate; cardinal teeth small and erect; lateral teeth long and curved; nacre white and iridescent.

Hab. Holston River, Tenn. S. M. Edgar.

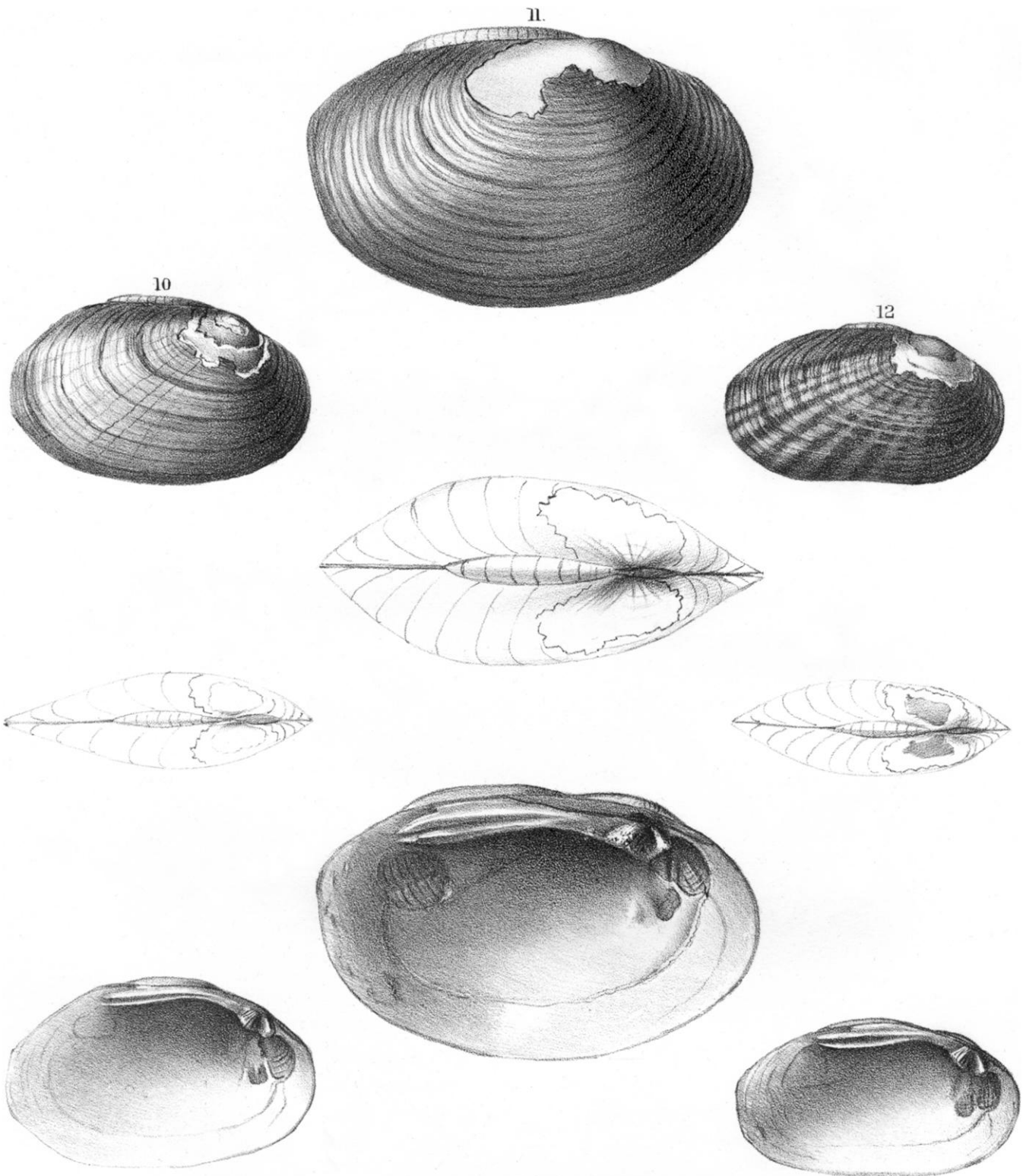
My Cabinet.

Diam. .7,

Length 1.1,

Breadth 1.9 inches.

Shell elliptical, somewhat compressed, very inequilateral, sub-emarginate at base; substance of the shell rather thick, thinner behind; beaks somewhat prominent; ligament rather long and thin; epidermis dark, with numerous green rays over nearly the whole disk; cardinal teeth small, double in both valves, erect and pointed; lateral teeth long and curved; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed in the centre of the cavity of the beaks; cavity of the shell shallow; cavity of the beaks shallow and angular; nacre very pearly and iridescent.



10. *Unio tener*.
 11. *Unio Tennesseeensis*.
 12. *Unio amoenus*.

H. C. Lea del.

on stone by J. T. French.

Sinclair's Lith. Phil.

Remarks.—A single specimen only of this species was taken by Mr. Edgar. It perhaps most nearly resembles *U. Medellinus* (nobis,) and *U. radiatus*. It is smaller and more transverse than the latter. Its pearly lustre is unusually fine. —In the individual before me the rays are thick and large.

UNIO OBTUSUS. Plate 11, Fig. 13.

Testâ obovatâ, inflatâ, posticè rotundatâ; valvulis subcrassis; natibus subprominentibus; epidermide luteâ, nitida; dentibus cardinalibus subgrandibus; lateralibus longis subrectisque; margaritâ albâ et iridescente.

Shell obovate, inflated, rounded behind; valves rather thick; beaks rather prominent; epidermis yellow, shining; cardinal teeth rather large; lateral teeth long and nearly straight; nacre white and iridescent.

Hab. Chattahoochee River, Columbus, Georgia. Dr. Boykin.

My Cabinet.

Diam. .9,

Length 1.3,

Breadth 2.2 inches.

Shell obovate, inflated, rounded behind; substance of the shell rather thick; beaks rather prominent; ligament rather short and thin; epidermis smooth, shining, yellow over the whole disk except on the posterior slope, which is dark brown; cardinal teeth rather large, double in both valves, erect, pointed; lateral teeth long and nearly straight; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices on the plate near to the cardinal tooth; cavity of the shell deep and rounded; cavity of the beaks rather deep and angular; nacre white and beautifully iridescent.

Remarks.—Three specimens of this species now under my examination differ but little from each other. The nacre of one on the posterior part is golden and very rich. This specimen has an indistinct ray upon it, the others are rayless, having a rich yellow surface. It has some resemblance to *U. cariosus*, Say, but is a more transverse shell, and differs in having the posterior slope entirely dark, while the *cariosus* is usually rayed on this part.

UNIO FATUUS. Plate 11, Fig. 14.

Testâ transversâ, compressâ, emarginatâ; valvulis subcrassis; natibus parvis; epidermide subviridi, radiatâ; dentibus cardinalibus parvis; lateralibus longis, subcurvisque; margaritâ albâ et iridescente.

Shell wide, compressed, emarginate; valves rather thick; beaks small; epidermis greenish, radiated; cardinal teeth small; lateral teeth long and somewhat curved; nacre white and iridescent.

Hab. Holston River, Tennessee. Dr. Currey.

My Cabinet, and Cabinet of Dr. Currey.

Diam. .8, Length 1.3, Breadth 2.7 inches.

Shell wide, compressed, emarginate; substance of the shell thin behind and thicker before; beaks small, rather compressed and placed near to the anterior margin; ligament long and thin; epidermis greenish with numerous obscure rays over the whole disk; umbonial slope rounded; cardinal teeth small, pointed, double in the left valve and single in the right; lateral teeth long, somewhat curved, separated from the cardinal teeth; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices nearly in the centre of the cavity of the beaks; cavity of the shell very shallow; cavity of the beaks very small; nacre white and iridescent.

Remarks.—This species has somewhat the aspect of a large *U. iris* (nobis,) and the outline of a young *U. subtentus* (Say.) The beaks are placed very near to the anterior margin. A single specimen came into my possession. More perfect ones may be found to possess more beautiful rays.

UNIO GEDDINGSIANUS. Plate 11, Fig. 15.

Testâ ellipticâ, subinflatâ; valvulis subtenuibus; natibus prominulis; epidermide fuscâ, radiatâ; dentibus cardinalibus compressis erectisque; lateralibus longis rectisque; margaritâ albâ vel salmonis colore tinctâ.

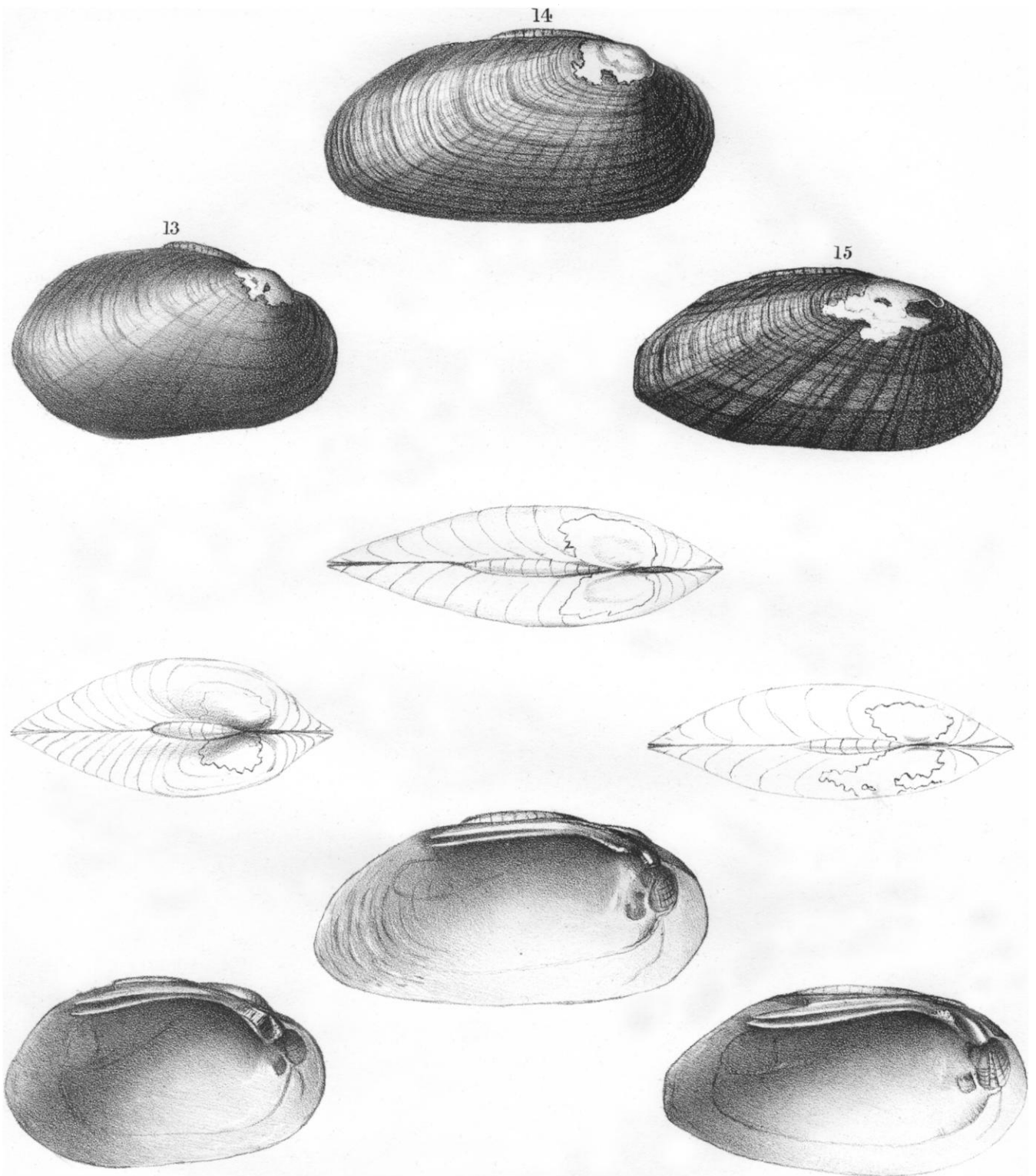
Shell elliptical, somewhat inflated; valves rather thin; beaks somewhat prominent; epidermis brown, radiated; cardinal teeth compressed and erect; lateral teeth long and straight; nacre white or salmon-coloured.

Hab. Congaree River, South Carolina. Prof. Ravenel.

My Cabinet, and Cabinet of Prof. Ravenel.

Diam. .8, Length 1.3, Breadth 2.4 inches.

Shell elliptical, somewhat inflated, biangulate behind; substance of the shell rather thin; beaks somewhat prominent; ligament long and thin; epidermis brown with numerous dark green rays over the whole disk; cardinal teeth compressed, elevated, deeply divided in the left valve; lateral teeth very long



H. C. Lea. del.

13 *Unio obtusus.*
 14 *Unio fatuus.*
 15 *Unio Geddingsianus.*
 on stone by J. T. French.

Sinclair's Lith. Phil.

and straight; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed under the plate between the cardinal and lateral teeth; cavity of the shell rather shallow; cavity of the beaks small and somewhat angular; nacre white or salmon-coloured.

Remarks.—Professor Ravenel sent me two specimens of this species some time since. I have delayed describing it under the impression that it might prove to be only a variety of *confertus* (nobis.) After a careful examination, however, it appears to me to be distinct, and I propose to give it the name of my friend Prof. Geddings of Charleston. It is a more transverse shell than *confertus*, is less inflated, and less elevated on the umbonial slope. The older specimen is partly salmon-coloured, the younger white in the nacre.

UNIO STRIATUS. Plate 12, Fig. 16.

Testâ ellipticâ, compressâ; valvulis tenuibus; natibus subprominentibus; epidermide striatâ, rubiginis colore; dentibus cardinalibus parvis; lateralibus sublongis subrectisque; margaritâ salmonis colore tinctâ et iridescente.

Shell elliptical, compressed; valves thin; beaks rather prominent; epidermis striate, rust-coloured; cardinal teeth small; lateral teeth rather long and nearly straight; nacre salmon-coloured and iridescent.

Hab. Chattahoochee River, Columbus, Georgia. Dr. Boykin.

My Cabinet.

Diam. .3, Length .9, Breadth 1.3 inches.

Shell elliptical, compressed; substance of the shell thin, thicker behind; beaks rather prominent; epidermis striate in thin laminæ; ligament short and thin; cardinal teeth small, double in the left valve and single in the right; lateral teeth rather long and nearly straight; anterior cicatrices distinct; posterior cicatrices distinct; dorsal cicatrices very small and placed nearly under the cardinal tooth; cavity of the shell shallow; cavity of the beaks very shallow and nearly angular; nacre salmon-coloured, more intense under the beaks, iridescent.

Remarks.—A small species having some resemblance to *U. Ravenelianus*, (nobis,) but not so thick, and more transverse. It is remarkable for the close

laminæ of the epidermis which give the whole disk (except at the beaks) a rough appearance. The epidermis is lighter about the beaks.

UNIO TORTIVUS. Plate 12, Fig. 17.

Testâ ellipticâ, compressâ, emarginatâ; valvulis subtenuibus; natibus subprominentibus, compressis; epidermide tenebroso-fuscâ, striatâ; dentibus cardinalibus parvulis; lateralibus longis curvisque; margaritâ purpureâ et iridescente.

Shell elliptical, compressed, emarginate; valves rather thin; beaks somewhat prominent, compressed; epidermis dark brown, striate; cardinal teeth very small; lateral teeth long and curved; nacre purple and iridescent.

Hab. Chattahoochee River, Columbus, Georgia. Dr. Boykin.

My Cabinet.

Diam. .6,

Length .1,

Breadth 1.9 inches.

Shell elliptical, compressed, emarginate at base; substance of the shell rather thin; beaks somewhat prominent, compressed; ligament rather long and thin; epidermis dark brown, striate; cardinal teeth very small and lobed; lateral teeth long and curved; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed in the centre of the cavity of the beaks; cavity of the shell very shallow; cavity of the beaks very shallow; nacre purple and iridescent.

Remarks.—This species belongs to that group of which the *U. complanatus*, may be considered the type, the nacre of which is usually purple, but sometimes white and salmon. The four specimens which are before me have all more or less purple, one being deeply coloured with it and tinged with purple, while another is almost white. It differs from the *complanatus* in being more compressed and in having a very small cardinal tooth. It is also a much smaller species. At the posterior margin there is a disposition to biangulation.

UNIO LENIOR. Plate 12, Fig. 18.

Testâ obovatâ, inflatâ; valvulis tenuibus; natibus vix prominentibus, ad apices undulatis; epidermide luteâ, densissimè radiatâ; dentibus cardinalibus compressis; lateralibus parvis; margaritâ albâ et iridescente.

Shell obovate, inflated; valves thin; beaks scarcely prominent, at the tips undulated; epidermis yellow, thickly rayed; cardinal teeth compressed; lateral teeth small; nacre white and iridescent.

Hab. Stone's River, Tenn. S. M. Edgar.

My Cabinet, and Cabinet of Mr. Edgar.

Diam. .5, Length .7, Breadth 1 inch.

Shell obovate, inflated; substance of the shell thin; beaks scarcely prominent, with minute undulations at the tip; ligament very small and thin; epidermis yellow, with numerous capillary rays over nearly the whole disk; cardinal teeth compressed; lateral teeth small and nearly straight; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed on the under side of the plate between the cardinal and lateral teeth; cavity of the shell deep and rounded; cavity of the beaks rather deep and angular; nacre white and iridescent.

Remarks.—One perfect individual and an odd valve were all which were taken by Mr. Edgar. Both these specimens are evidently females having the umbonial slope enlarged, and the dentate margin which so well characterizes the sex. These specimens may not be of full growth, but I doubt if they occur much larger. This species has some resemblance to a young *U. brevidens*, (nobis,) but is a very much smaller and thinner shell, and differs in the rays.

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UNIO NITENS. Plate 12, Fig. 19.

Testâ ellipticâ, transversâ, subinflatâ; valvulis subtenuibus; natibus subprominentibus; epidermide tenebroso-fuscâ; dentibus cardinalibus parvis, elevatis; lateralibus longis subrectisque; margaritâ cupreâ, splendidissimâ et iridescente.

Shell elliptical, wide, somewhat inflated; valves rather thin; beaks somewhat prominent; epidermis dark brown; cardinal teeth small, erect; lateral teeth long and nearly straight; nacre copper-coloured, very splendid and iridescent.

Hab. Long Creek, Cocke Co., Tenn. S. M. Edgar.

My Cabinet, and Cabinets of Mr. Edgar, Dr. R. O. Currey and Prof. Troost.

Diam. .7, Length 1.2, Breadth 1.9 inches.

Shell elliptical, transverse, somewhat inflated, substance of the shell thin, thicker before; beaks rather prominent and slightly undulate at tip; ligament

rather short and thin; epidermis dark brown, obscurely rayed; umbonial slope rounded; cardinal teeth small, erect, pointed, double in the left and single in the right valve; lateral teeth long, nearly straight, separated from the cardinal tooth; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed directly in the cavity of the beaks; cavity of the shell rather deep; cavity of the beak shallow and angular; nacre of a very splendid copper-colour, whitish on the anterior basal margin, dark in the cavity and posterior part, beautifully iridescent.

Remarks.—The bright and splendid hue of the nacre of this species is superior to any other which has come under my notice. In outline it is closely allied to *U. obscurus* (nobis,) but its fine nacre easily distinguishes it. In young specimens may be observed indistinct small rays over the posterior part of the disk. Two of the specimens before me are enlarged at the posterior basal margin, indicating their being females.

UNIO LINEATUS. Plate 12, Fig. 20.

Testâ ellipticâ, inflatâ; valvulis tenuibus; natibus subprominentibus, ad apices undulatis; epidermide luteâ, radiatâ, politâ; dentibus cardinalibus parvis, lamellatis; lateralibus parvis, subcurvisque; margaritâ salmonis colore tinctâ et iridescente.

Shell elliptical, inflated; valves thin; beaks rather prominent, undulate at the tip; epidermis yellow, radiated, polished; cardinal teeth small, lamellar; lateral teeth small and somewhat curved; nacre salmon-coloured and iridescent.

Hab. Chattahoochee River, Columbus, Georgia. Dr. Boykin.

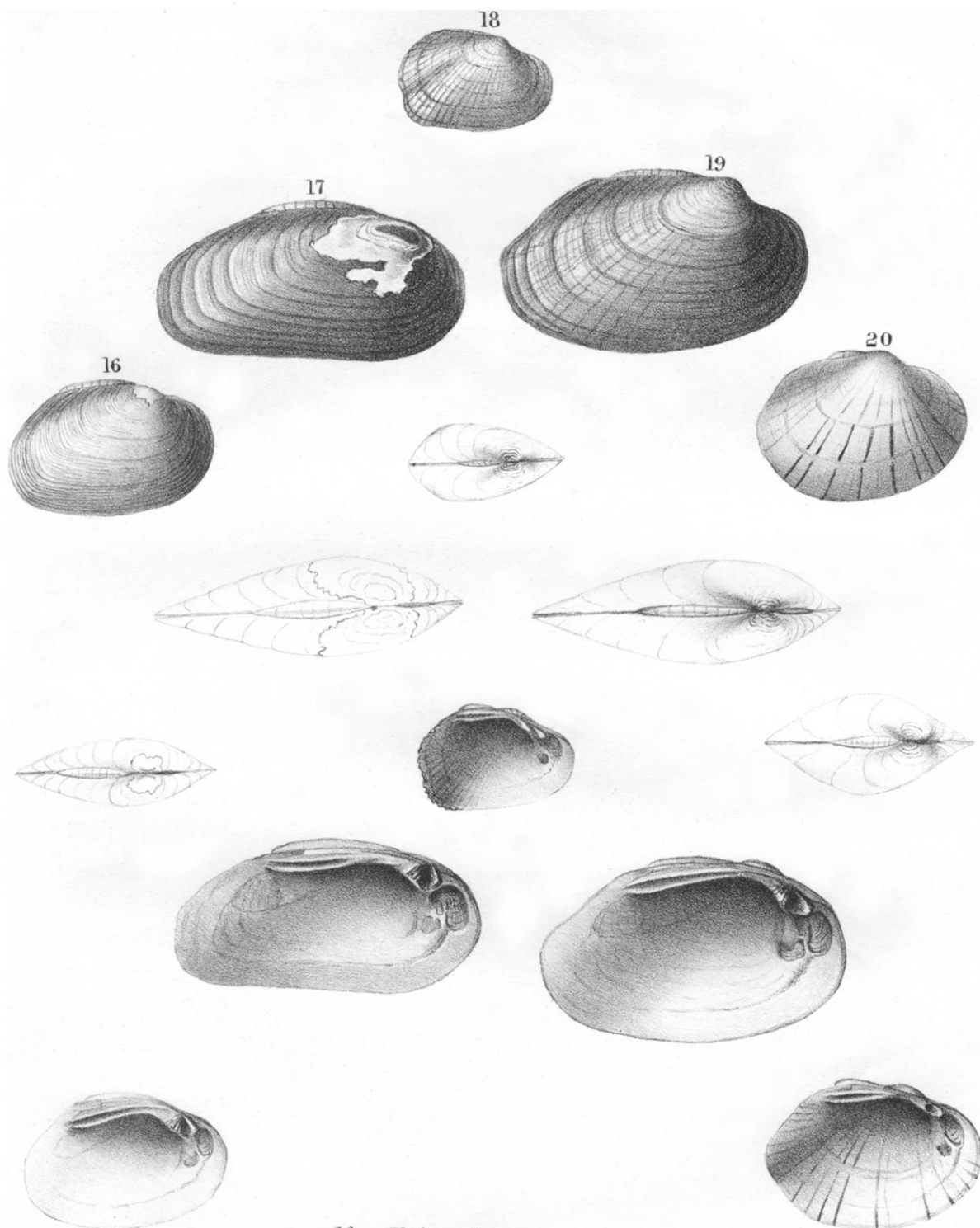
My Cabinet.

Diam. .6,

Length .9,

Breadth 1.4 inches.

Shell elliptical, inflated, with distinct linear rays over the whole disk except on the posterior slope; substance of the shell thin; beaks rather prominent, undulate at the tip; ligament short and rather thick; epidermis yellow and finely polished; cardinal teeth small, compressed, disposed to be double in both valves; lateral teeth small and somewhat curved; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices on the plate between the cardinal and lateral teeth; cavity of the shell large; cavity of the beaks rather deep and angular; nacre salmon-coloured and iridescent.



- 16 *Unio striatus.*
 17 *Unio tortivus.*
 18 *Unio tenuis.*
 19 *Unio nitens.*
 20 *Unio lineatus.*

Remarks.—This species is allied to the *U. occidents*, (nobis,) but is a much smaller shell. The three specimens under my examination are all the same size, and might easily be mistaken for young individuals of the *occidentis*. It differs in the rays, the undulation of the beaks and the size. The rays are slightly interrupted and are visible through the beautiful and delicate nacre.

UNIO ATRO-MARGINATUS. Plate 13, Fig. 21.

Testâ plicatâ, oblongâ, compressâ; valvulis subtenuibus; natibus prominulis; epidermide tenebrôsâ; dentibus cardinalibus parvis; lateralibus longis subrectisque; margaritâ purpureâ et valdè iridescente.

Shell plicate, oblong, compressed; valves rather thin; beaks somewhat prominent; epidermis very dark; cardinal teeth small; lateral teeth long and nearly straight; nacre purple and very iridescent.

Hab. Chattahooche River, Columbus, Geo. Dr. Boykin.

My Cabinet.

Diam. .5,

Length 1.2,

Breadth 1.9 inches.

Shell folded over the whole disk, oblong, compressed; substance of the shell rather thin; beaks somewhat prominent; ligament rather short and thin; epidermis very dark, almost black; posterior slope carinate and covered with regular, nearly parallel folds; cardinal teeth small, double in the left and single in the right valve; lateral teeth long and nearly straight; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed nearly in the centre of the cavity of the shell; cavity of the shell very shallow; cavity of the beaks very small; nacre purple and very iridescent.

Remarks.—Two specimens only of this distinct and interesting species were received among the shells from Dr. Boykin. In outline and in the folds it resembles the *Margaritana rugosa*, (*Alasmodonta rugosa*, Barnes.) It differs from it not only generically in the teeth, but in the colour of the epidermis, in the nacre and in having folds over the whole disk. The two specimens before me have a beautiful purple nacre shading off into white towards the cavity of the beaks. The folds causing undulations within the cavity display the fine iridescence of the nacre. The margin is remarkably broad and black. It is very likely that, when numerous specimens are examined, the nacre may be found to vary, and some prove entirely white and some salmon-coloured as in the *Unio complanatus*.

UNIO BOYKINIANUS. Plate 13, Fig. 22.

Testâ alatâ, plicatâ, triangulari, subcompressâ; valvulis crassis; natibus prominulis; epidermide tenebroso-fuscâ; dentibus cardinalibus parvis; lateralibus sublongis; margaritâ albâ et iridescente.

Shell winged, folded, triangular, rather compressed; valves thick; beaks somewhat prominent; epidermis dark brown; cardinal teeth small; lateral teeth rather long; nacre white and iridescent.

Hab. Chattahoochee River, Columbus, Geo. Dr. Boykin.

My Cabinet.

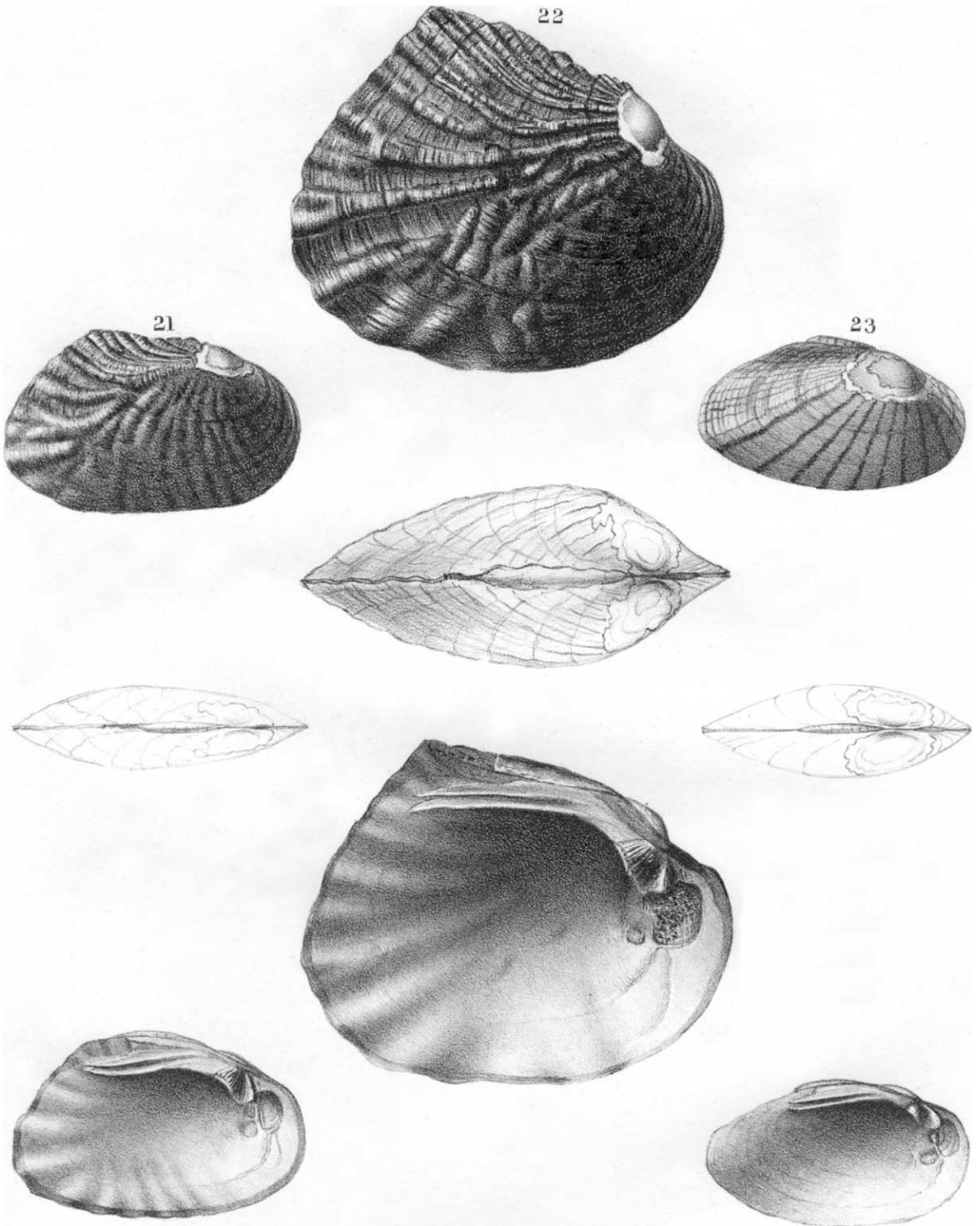
Diam. .1.2,

Length 2.2,

Breadth 2.8 inches.

Shell winged, folded all over the disk, triangular; rather compressed; substance of the shell thick; beaks somewhat prominent; ligament short and thin; epidermis dark brown; cardinal teeth small, apparently divided into three lobes in each valve; lateral teeth rather long and slightly curved; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices on the under side of the plate near to the cardinal tooth; cavity of the shell rather deep; cavity of the beak angular; nacre white and iridescent.

Remarks.—I owe to the kindness of Dr. Boykin this fine species, as well as many others herein described from the same locality. It has perhaps more resemblance to *U. Nicklinianus* (nobis,) than to any other species in its outline, and its folds, which latter are, however, larger. On the posterior slope the folds are very regular, on the other part, less so. I have had in my possession many years a young individual from the late Judge Tait, much resembling this, and it may prove to be the same species. The geographical distribution of the species of this family is of great interest and very important in many respects, as we find a marked distinction in nearly all the different species respectively inhabiting the waters east and west of the mountains, as I have elsewhere observed. For many years I have been exceedingly desirous of obtaining the shells inhabiting the approximating waters which fall respectively into the Atlantic on one side, and the Gulf of Mexico east of the Mississippi, on the other. The Chattahoochee is the first river of magnitude rising in the mountains which descends to the gulf, unless the Flint river be excepted. Among the species from this locality now under examination, I find three with folds (none with tubercles,) which, as we do not possess any in our eastern rivers, may be considered to have the western character. The remainder in part resemble



21 *Unio atromarginatus.*
 22 *Unio Boykinianus.*
 23 *Unio subangulatus.*

our eastern species, but others again resemble the smooth ones of the West. I have made many attempts to obtain the shells of Ocmulgee river, the most southern of the Atlantic basin, without success. It would be exceedingly desirable to compare the species of the two basins, in order to designate the characters of those so nearly placed together in waters of so wide a drainage.

UNIO SUBANGULATUS. Plate 13, Fig. 23.

Testâ ellipticâ, subinflatâ, posticè subangulatâ; valvulis tenuibus; natibus subprominentibus; epidermide luteâ, radiatâ, politâ; dentibus cardinalibus subgrandibus, erectisque; lateralibus sublongis subrectisque; margaritâ salmonis colore tinctâ et iridescente.

Shell elliptical, somewhat inflated, subangulate behind; valves thin; beaks rather prominent; epidermis yellow, rayed, polished; cardinal teeth rather large and erect; lateral teeth rather long and nearly straight; nacre salmon-coloured and iridescent.

Hab. Chattahoochee River, Columbus, Georgia. Dr. Boykin.

My Cabinet.

Diam. .6, Length .1, Breadth 1.7 inches.

Shell elliptical, somewhat inflated, subangulate behind; substance of the shell thin; beaks rather prominent, slightly undulate at the tip; ligament rather short and thin; epidermis yellow, rayed over the whole disk, polished; cardinal teeth double in both valves, erect, pointed; lateral teeth rather long and nearly straight; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed on the under side of the cardinal tooth; cavity of the shell rather deep; cavity of the beaks small and angular; nacre salmon-coloured and iridescent.

Remarks.—In the examination of seven specimens of this species one proved to have a white nacre and another to have obsolete rays. The whole disk is usually covered with rays; the colour of the epidermis is of an ochry yellow.

UNIO PILARIS. Plate 14, Fig. 24.

Testâ rotundatâ, inflatâ; valvulis crassis; natibus elevatis; epidermide striatâ, tenebroso fuscâ; dentibus cardinalibus subgrandibus; lateralibus longulis subrectisque; margaritâ albâ.

Shell rounded, inflated; valves thick; beaks elevated; epidermis striate and dark brown; cardinal teeth rather large; lateral teeth rather long and nearly straight; nacre white.

Hab. French, Broad and Holston Rivers, East Tenn. S. M. Edgar.

My Cabinet, and Cabinets of Mr. Edgar and Dr. Troost.

Diam. .1, Length 1.4, Breadth 1.6 inches.

Shell rounded, inflated, solid; substance of the shell very thick; beaks elevated; ligament rather short and thick; epidermis with indistinct rays, striate, dark brown, becoming squamose towards the margin; lines of growth approximate; cardinal teeth rather large; lateral teeth rather long, thick, nearly straight; anterior cicatrices distinct; posterior cicatrices distinct, the smaller one being placed on the end of the lateral tooth; dorsal cicatrices placed on the under side of the cardinal tooth; cavity of the shell shallow, rounded; cavity of the beaks rather deep and angular; nacre milky white.

Remarks.—Mr. Edgar brought this species from East Tennessee, and kindly submitted several specimens to me. It seems to be naturally placed between *U. ebenus* and *U. subrotundus* (nobis,) and to resemble *U. maculatus*, Con. Mr. Edgar informs me that the animal is colourless.

UNIO TUBEROSUS. Plate 14, Fig. 25.

Testâ nodosâ, triangulari, emarginatâ; valvulis crassis; natibus elevatis; epidermide luteâ, striatâ; dentibus cardinalibus magnis; lateralibus parvis rectisque; margaritâ albâ.

Shell nodulous, triangular, emarginate; valves thick; beaks elevated; epidermis yellow, striate; cardinal teeth large; lateral teeth small and straight; nacre white.

Hab. Cany Fork and Cumberland Rivers, Middle Tenn. S. M. Edgar.

My Cabinet, and Cabinets of Mr. Edgar and Dr. Troost.

Diam. .1, Length 1.9, Breadth 2.2 inches.

Shell tuberculate nearly all over, triangular, emarginate at the posterior margin, depressed behind the umbonial slope; substance of the shell very thick before, thinner behind; beaks elevated; ligament rather short and thick; epidermis yellow, striate; cardinal teeth very large and double in both valves; lateral teeth very short, thick and straight; anterior cicatrices distinct; posterior cicatrices distinct; dorsal cicatrices placed on the under side of the cardinal tooth; cavity of the shell shallow; cavity of the beaks very deep and angular; nacre white and silvery.

Remarks.—This is a very interesting species, and so closely resembles the *U. Metanever*, Raf. on one side, and *U. intermedius*, Con. on the other, that I at first, on seeing a single specimen, had doubts of the propriety of proposing for it a new name. I have before me five individuals brought by Mr. Edgar from Middle Tennessee, and also five specimens of *U. intermedius* which came from East Tennessee. The latter are all smaller than the *tuberosus*, and differ in having very few and very small tubercles, while the *tuberosus* is crowded with large ones. From the *metanever* it differs totally, in being without the large and regular tubercles of the umbonial slope, and the slope is less elevated. The nacre is very silvery, and with little or no iridescence. In one specimen there are a few indistinct green spots in the epidermis, which in fine young specimens may resemble the arrow-headed marks of the *metanever*.

UNIO PLENUS. Plate 14, Fig. 26.

Testâ triangulari, inflatâ; valvulis crassissimis; natibus elevatis, crassis; epidermide luteo-fuscâ, rugosâ; dentibus cardinalibus magnis; lateralibus brevibus subrectisque; margaritâ albâ et iridescente.

Shell triangular, inflated; valves very thick; beaks elevated and thick; epidermis yellowish-brown, wrinkled; cardinal teeth large; lateral teeth short and nearly straight; nacre white and iridescent.

Hab. Ohio River, near Cincinnati. T. G. Lea.

My Cabinet and Cabinet of T. G. Lea.

Diam. 1.1, Length 1.8, Breadth 1.6 inches.

Shell triangular, inflated, flattened before the umbonial slope, nearly equilateral, emarginate at base; substance of the shell very thick; beaks elevated, very thick and incurved, at the tip slightly undulate; ligament very short and rather thick; epidermis yellowish-brown, wrinkled, obscurely radiated on the umbones, the rays being lost in the wrinkles nearly half-way from the beaks; umbonial slope carinate; posterior slope much flattened; cardinal teeth large, single in the left and double in the right valve; lateral teeth short, nearly straight and disposed to be double in both valves; anterior cicatrices distinct; posterior cicatrices distinct, the smaller one being placed on the end of the lateral tooth; dorsal cicatrices placed on the under side of the cardinal tooth; cavity of the shell rather deep; cavity of the beaks deep and angular; nacre white and iridescent.

Remarks.—This species has embarrassed me for some time, as I have had, until recently, but few specimens. There is a close resemblance in the specimens before me both to the *U. obliquus*, Lam., and *U. trigonus*, (nobis.) It differs from both in being more rounded at the base, the emargination being very small. It is higher in the beaks than the *trigonus*, and more flattened there than the *obliquus*. In colour it approaches more to the former. The rays are less distinct than in the *obliquus*, rarely reaching more than half-way to the base. They vary very little in all the specimens I have examined. In two specimens out of fourteen before me, the nacre in the cavity of the shell is pale salmon colour.

UNIO HOLSTONENSIS. Plate 15, Fig. 27.

Testâ triangulari, solidâ, inflatâ; valvulis crassis; natibus magnis, elevatis; epidermide tenebrososâ, radiatâ; dentibus cardinalibus subgrandibus; lateralibus crassis brevibusque; margaritâ albâ et iridescente.

Shell triangular, solid, inflated; valves thick; beaks large and elevated; epidermis dark brown, radiated; cardinal teeth rather large; lateral teeth thick and short; nacre white and iridescent.

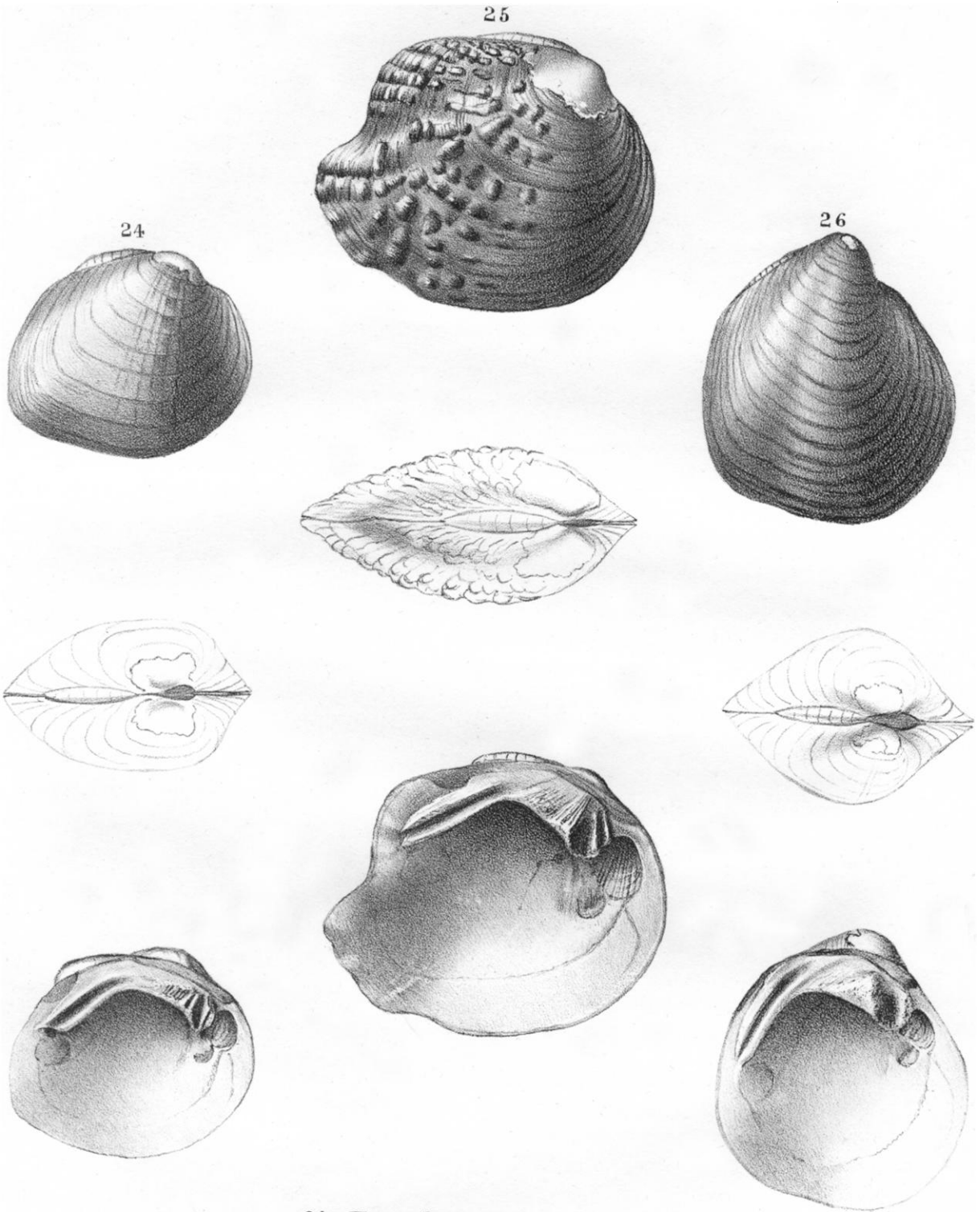
Hab. Holston River, Tenn. S. M. Edgar.

My Cabinet and Cabinet of Mr. Edgar.

Diam. .8, Length 1.1, Breadth 1.5 inches.

Shell triangular, solid, inflated; substance of the shell very thick, thinner behind; beaks elevated, large and solid; ligament short and rather thick; epidermis dark brown with several large interrupted rays over the umbones; cardinal teeth rather large; lateral teeth oblique, short, thick and nearly straight; anterior cicatrices distinct; posterior cicatrices distinct, the smaller one being placed on the end of the lateral tooth; dorsal cicatrices scarcely perceptible, placed on the inferior part of the cardinal tooth; cavity of the shell very shallow; cavity of the beaks shallow and rounded; nacre white and iridescent.

Remarks.—A single specimen only of this shell was received with those sent by Mr. Edgar. It is a well characterized little species. In outline it is somewhat like *U. trigonus*, (nobis,) but is more rounded, has not so sharp a carina and may be distinguished by its broad rays.



24. *Unio pilaris*.
 25. *Unio tuberosus*.
 26. *Unio plenus*.

UNIO BOURNIANUS. Plate 15, Fig. 28.

Testâ triangulari, compressâ; valvulis crassis; natibus elevatis, incurvis, ad apices undulatis; epidermide luteâ, densè radiatâ; dentibus cardinalibus subgrandibus; lateralibus subcurvis; margaritâ albâ et iridescente.

Shell triangular, compressed; valves thick; beaks elevated, incurved and undulated at the tip; epidermis yellow, much radiated; cardinal teeth rather large; lateral teeth somewhat curved; nacre white and iridescent.

Hab. Scioto River, near Chillicothe, Ohio. A. Bourne.

My Cabinet, and Cabinet of Mr. Bourne.

Diam. .7, Length 1.2, Breadth 1.2 inches.

Shell triangular, very much compressed behind the umbonial slope, swollen over the umbones; substance of the shell very thick, thinner towards the posterior basal margin; beaks elevated, very thick and solid, incurved and undulated at the apex; ligament short and thin; epidermis yellow with numerous interrupted rays nearly over the whole disk, the lines of growth being very distinct; cardinal teeth rather large and broad; lateral teeth thick and somewhat curved; anterior cicatrices distinct, the superior one very deep; posterior cicatrices distinct, and placed on the end of the lateral tooth; dorsal cicatrices placed rather under the cardinal tooth; cavity of the shell shallow; cavity of the beaks shallow and angular; nacre white and iridescent.

Remarks.—This species seems only to have been observed by Mr. Bourne, by whose kindness I have before me the two specimens found by him. In outline, general form and solidity it resembles most *U. pyramidatus*, (nobis.) It differs entirely in the epidermis being yellow and having rays, and in the nacre which has no appearance of colour whatever in either specimen. In one individual beautiful green rays cover the disk—in the other they do not reach to the anterior margin. The epidermis in both is remarkably yellow. I name it after the naturalist Mr. Bourne, who has first observed it.

UNIO PAULUS. Plate 15, Fig. 29.

Testâ ellipticâ, inflatâ, minimâ; valvulis crassis; natibus subprominentibus; epidermide subnigrâ; dentibus cardinalibus parvis; lateralibus longis curvisque; margaritâ albâ et iridescente.

Shell elliptical, inflated, very small; valves thick; beaks somewhat prominent; epidermis nearly black; cardinal teeth small; lateral teeth long and curved; nacre white and iridescent.

Hab. Chattahoochee River, Columbus, Georgia. Dr. Boykin.

My Cabinet.

Diam. .4, Length .6, Breadth .9 inches.

Shell elliptical, inflated, very small; substance of the shell thick, thinner behind; beaks somewhat prominent; ligament short and thin; epidermis nearly black; cardinal teeth small, disposed to be double in both valves; lateral teeth long and curved; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed on the inferior part of the tooth; cavity of the shell deep; cavity of the beaks very small; nacre white, pearly and beautifully iridescent on the posterior part.

Remarks.—A single specimen only of this species was received. It seems to be most nearly allied to *U. parvus*, Barnes, but differs in being a smaller species and having a thicker nacre.

More recently I received from J. H. Couper, Esq., of Hopeton near Darien three specimens of this species, one of which is sub-carinate on the umbonal slope. A second one is enlarged posteriorly exhibiting the female character. All of the three are rather smaller than that received from Dr. Boykin.

UNIO EDGARIANUS. Plate 15, Fig. 30.

Testâ triangulari, compressâ, emarginatâ; valvulis crassis, natibus elevatis; epidermide luteâ, valdè radiatâ; dentibus cardinalibus magnis, lateralibus rectis; margaritâ albâ et iridescente.

Shell triangular, compressed, emarginate; valves thick; beaks elevated; epidermis yellow, much radiated; cardinal teeth large; lateral teeth straight; nacre white and iridescent.

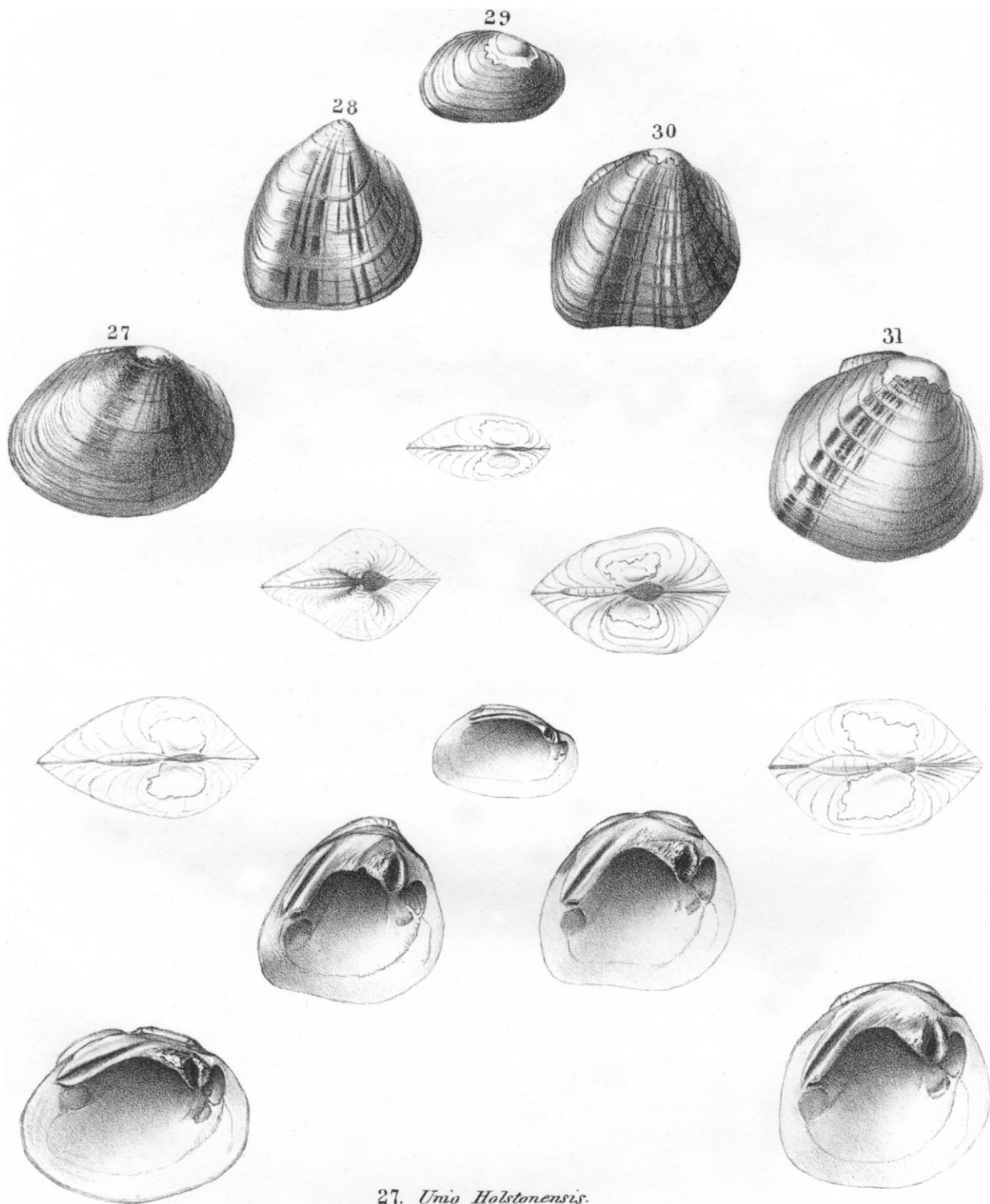
Hab. Holston River, Tenn. Prof. Troost and Dr. Currey.

“ Tennessee River, at Florence, Ala. Mr. Dutton.

My Cabinet, and Cabinets of Mr. Edgar, Dr. Currey and Prof. Troost.

Diam. .8, Length 1.2, Breadth 1.3 inches.

Shell triangular, compressed, emarginate at base, flattened or widely furrowed before the umbonal slope; substance of the shell thick; beaks elevated and



27. *Unio Holstonensis.*
 28. *Unio Bournianus.*
 29. *Unio paulus.*
 30. *Unio Edgarianus.*
 31. *Unio dölabeiloides.*

thick; ligament small, linear; epidermis yellow, with numerous or large dark green rays over nearly the whole disk; umbonial slope carinate; cardinal teeth large, pointed; lateral teeth oblique and straight; anterior cicatrices distinct; posterior cicatrices distinct, the smaller one being placed on the end of the lateral tooth; dorsal cicatrices small, placed on the upper side of the cavity of the beaks; cavity of the shell very shallow; cavity of the beaks small and angular; nacre white and iridescent.

Remarks.—Two specimens only were received by me from Mr. Edgar, to whom I dedicate it. It is an interesting little species, and is remarkable for its form and the dark green rays, which almost cover the yellow ground. The larger specimen has a wide furrow nearly down the centre of the valve from the beak—the smaller one is only flattened there. In both specimens the posterior slope is devoid of rays.

UNIO DOLABELLOIDES. Plate 15, Fig. 31.

Testâ subrotundâ, subinflatâ; valvulis crassissimis; natibus valdè elevatis; epidermide fuscâ, radiatâ; dentibus cardinalibus minimis; lateralibus brevibus rectisque; margaritâ albâ et iridescente.

Shell rather round, somewhat inflated; valves very thick; beaks much elevated; epidermis brown, radiated; cardinal teeth very small; lateral teeth short and straight; nacre white and iridescent.

Hab. Holston River, Tenn. S. M. Edgar.

My Cabinet, and Cabinet of Mr. Edgar.

Diam. .9, Length 1.3, Breadth 1.3 inches.

Shell rather round, somewhat inflated, flat before the umbonial slope; substance of the shell very thick; beaks very much elevated and thick; ligament very short; epidermis brown, with broad interrupted rays behind the umbonial slope; umbonial slope sub-carinate; cardinal teeth very small and rather flattened; lateral teeth short and straight, with a broad plate intervening between them and the cardinal tooth; anterior cicatrices distinct; posterior cicatrices distinct, the smaller one being placed on the end of the lateral tooth; dorsal cicatrices very small and placed on the upper side of the cavity of the beaks; cavity of the shell shallow; cavity of the beaks angular; nacre white and iridescent.

Remarks.—Mr. Edgar procured this species when on a geological tour with Professor Troost up the Holston River. A single specimen only is in my possession, but its characters are so distinct that I do not hesitate to propose it as a new species. It seems to be between *U. undatus*, (Barnes,) and *U. Cor*, (Conrad.) The specimen before me is remarkable for the broad rays extending to the basal margin behind the umbonial slope on the flattened part of the side of the valve. The beaks of the specimen being eroded, it is impossible to say if the tips be undulated or not.

UNIO BOYDIANUS. Plate 16, Fig. 32.

Testâ obovatâ, subinflatâ, valdè inæquilaterali; valvulis subtenuibus; natibus subprominentibus, ad apices undulatis; epidermide luteo fuscâ; dentibus cardinalibus compressis; lateralibus longis subrectisque; margaritâ albâ et iridescente.

Shell obovate, rather inflated, very inequilateral; valves rather thin; beaks rather prominent, undulate at the tip; epidermis yellowish-brown; cardinal teeth compressed; lateral teeth long and nearly straight; nacre white and iridescent.

Hab. Oak Orchard Creek, Orleans County, N. Y. Dr. Boyd.

My Cabinet, and Cabinet of Dr. Jay.

Diam. .8,

Length 1.2,

Breadth 1.9 inches.

Shell obovate, rather inflated, very inequilateral, subangulate before, with regular, rather close and nearly equidistant marks of growth; substance of the shell rather thin, thicker before; beaks rather prominent, with small undulations at the tip; ligament rather short and thin; epidermis yellowish-brown, striate; cardinal teeth compressed, double in both valves; lateral teeth long and nearly straight; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices on the under side of the cardinal tooth; cavity of the shell rather deep and rounded; cavity of the beaks shallow and subangular; nacre white and iridescent.

Remarks.—Dr. Jay kindly sent me two specimens of this shell some time since. They were collected by Dr. Boyd, Assistant State Geologist. One of them has a few rays behind, the other is without rays. The anterior slope in both specimens is truncate, so much so in the smaller one, as to induce me to believe it to be deformed. It is perhaps most nearly allied to *U. ochraceus*, Say.

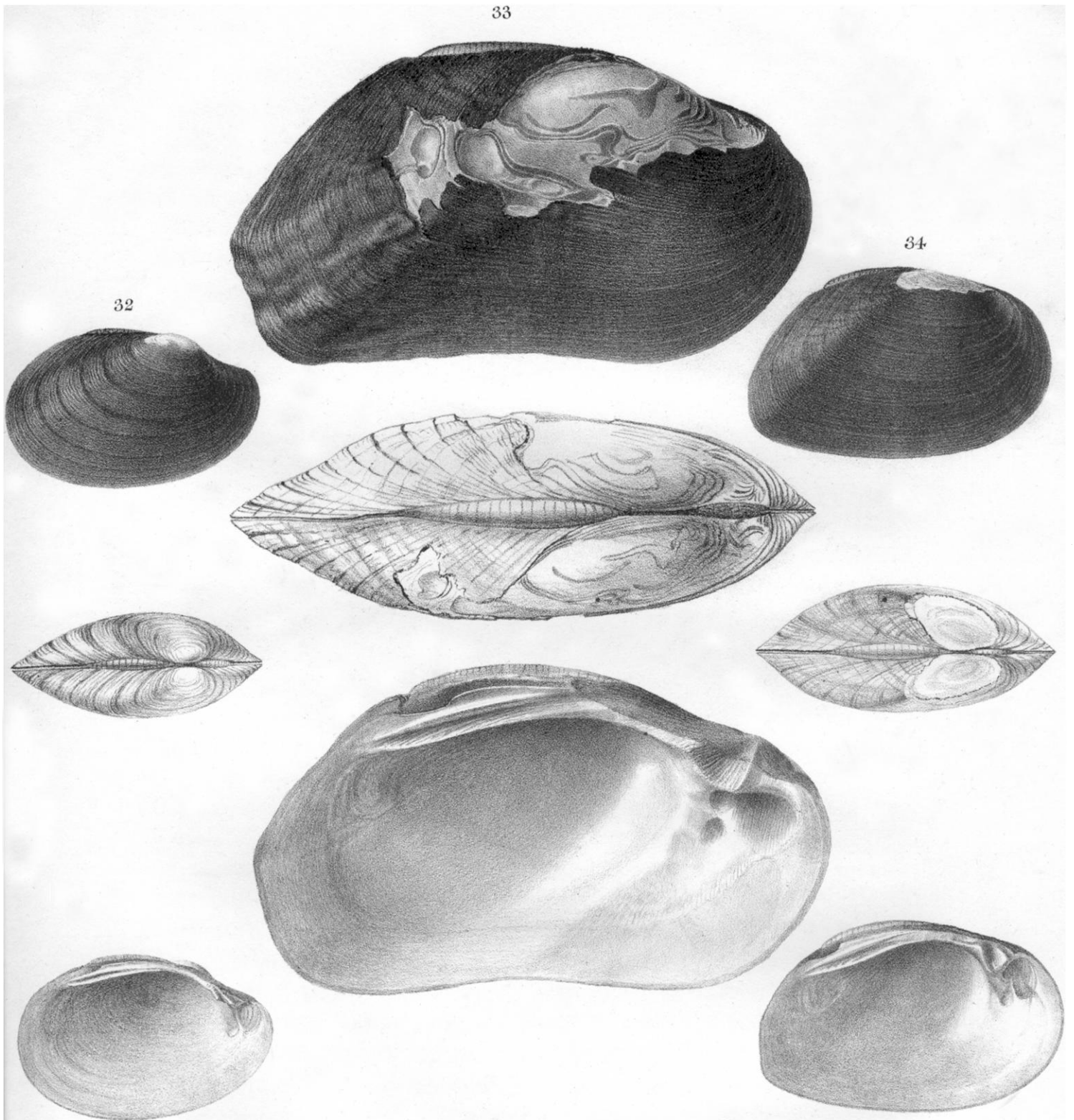


Fig. 32 Unio Boydianus.
 " 33 " *Sloatianus.*
 " 34 " *incrassatus.*

UNIO SLOATIANUS. Plate 16, Fig. 33.

Testâ plicatâ, oblongâ, subcompressâ, valdè inæquilaterali; valvulis crassis; natibus subprominentibus; epidermide subnigrâ; dentibus cardinalibus subgrandibus; lateralibus crassis longisque; margaritâ albâ et purpureâ.

Shell plicate, oblong, rather compressed, very inequilateral; valves thick; beaks somewhat prominent; epidermis nearly black; cardinal teeth rather large; lateral teeth thick and long; nacre white and purple.

Hab. Chattahoochee River, Georgia. L. W. Sloat.

My Cabinet, and Cabinets of Dr. Jay and Mr. Sloat of Mobile.

Diam. 1.5, Length 2.3, Breadth 4.2 inches.

Shell folded, oblong, rather compressed, very inequilateral, biangular behind; substance of the shell thick; beaks somewhat prominent; ligament long and thick; epidermis nearly black; cardinal teeth rather large and striate; lateral teeth thick and long; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed under the plate between the cardinal and lateral teeth; cavity of the shell shallow; cavity of the beaks shallow and angular; nacre white with purple tints, iridescent behind.

Remarks.—The specimen described was kindly lent to me by Dr. Jay, who received it of Mr. Sloat, the latter gentleman having found but two specimens. The specimen quoted as being in my Cabinet, was sent to me by Dr. Boykin of Columbus, Georgia. I have classed it with the *Sloatianus*, with some hesitation, as it differs in being a thicker and more inflated shell, in being more plicate, and in having an angle on the umbonial slope. The specimen is a depauperated one, and when more perfect ones are observed, other characters may be found, which would render it necessary to make a distinct species of it.

UNIO INCRASSATUS. Plate 16, Fig. 34.

Testâ plicatâ, triangulari, subinflatâ; valvulis crassis; natibus subprominentibus; epidermide subnigrâ; dentibus cardinalibus parvis; lateralibus longis subrectisque; margaritâ salmonis colore tinctâ, vel purpureâ vel albâ et iridescente.

Shell plicate, triangular, rather inflated; valves thick; beaks somewhat prominent; epidermis nearly black; cardinal teeth small; lateral teeth long and nearly straight; nacre salmon-coloured, purple or white and iridescent.

Hab. Chattahoochee River, near Columbus, Georgia. Dr. Boykin.

My Cabinet, and Cabinet of Mr. Nicklin.

Diam. .9, Length, 1.4 Breadth 2.2 inches.

Shell folded on the posterior slope, triangular, rather inflated; substance of the shell thick, thinner behind; beaks somewhat prominent; ligament short and thick; epidermis nearly black; cardinal teeth small, lobed and striate; lateral teeth long and nearly straight; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed on the under side of the plate between the cardinal and lateral teeth; cavity of the shell rather shallow; cavity of the beaks shallow and subangular; nacre salmon-coloured, purple or white, and very iridescent behind.

Remarks.—Specimens of various ages of this species were kindly sent to me by Dr. Boykin. In general outline and appearance it closely resembles *U. crassidens*, Lam., but is a much smaller species. It belongs to that great group of which the *U. complanatus*, may be considered the type. Among the numerous specimens before me, the salmon colour prevails greatly, purple being the rarest. In the young specimens obscure rays may be observed, in the adults the umbonial slope is usually angular, and bounds the folds, which are not numerous.

UNIO DELPHINUS. Plate 17, Fig. 35.

Testâ alatâ, latâ, compressâ, posticè biangulatâ, valdè inæquilaterali; alâ elevata, acuminatâ, duplici; valvulis subcrassis; natibus vix prominentibus; epidermide tenebroso-fuscâ; dentibus cardinalibus parvis, crenulatis; lateralibus longissimis rectisque; margaritâ albâ et iridescente.

Shell winged, wide, compressed, biangular behind, very inequilateral; wing high, acuminate and double; valves somewhat thick; beaks scarcely prominent; epidermis dark brown; cardinal teeth small, crenulate; lateral teeth very long and straight; nacre white and iridescent.

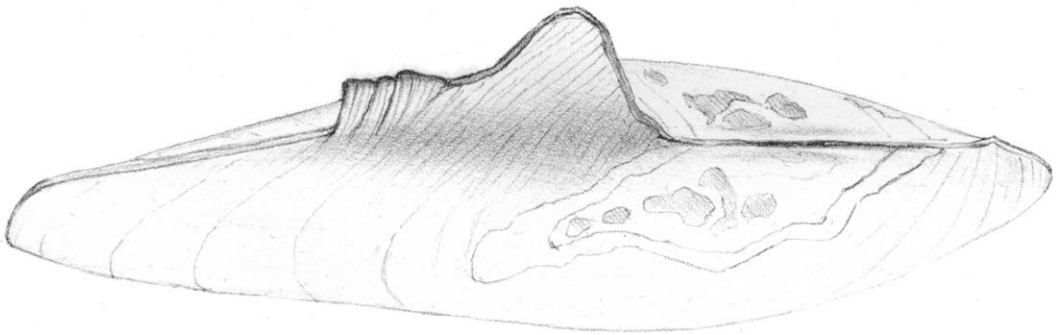
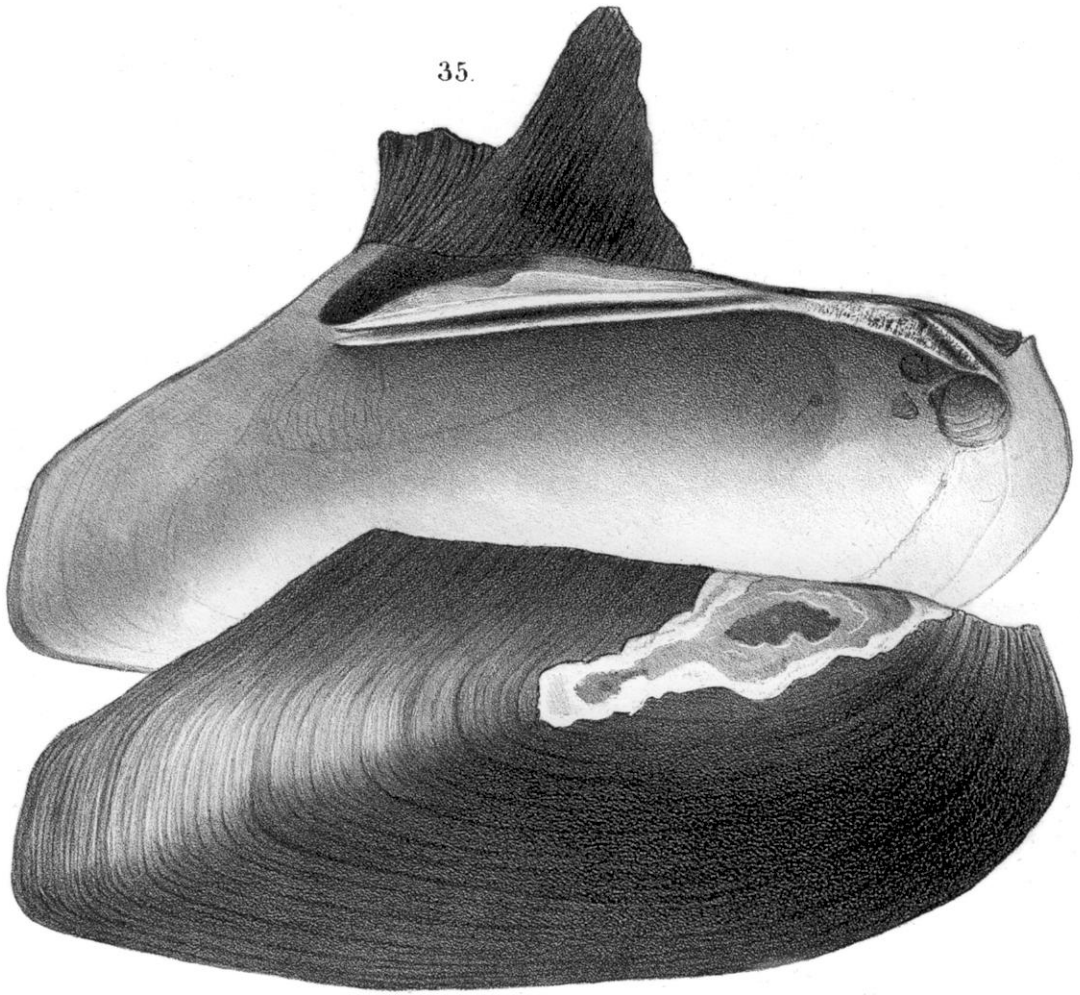
Hab. New Holland.? G. Von den Busch, M. D.

My Cabinet, and Cabinets of Dr. Von den Busch and Mr. Gruner of Bremen.

Diam. 1.2, Length 3.6, Breadth 5.5 inches.

Shell winged, wide, compressed, biangular behind, subangular on the umbonial slope, with numerous very minute granulations over the disk, very inequilateral; wing high, duplex, terminating in two points, the anterior one being the highest and acutely pointed; substance of the shell rather thick; beaks scarcely prominent; ligament concealed, except the posterior part, which is

35.



35. *Unio delphinus*.

spread out on the valve; epidermis very dark brown; cardinal teeth small, crenulate; lateral teeth very long and straight; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed in a row in the cavity of the beaks; cavity of the shell very shallow; cavity of the beaks exceedingly small; nacre white and beautifully iridescent.

Remarks.—Since I described the *U. cucumoides*, from New South Wales, I have received the above described species from Dr. Von den Busch, and by his kindness I am permitted to place it in my Cabinet. It is certainly among the most curious and interesting species which have been observed. The duplex form of the wing is very remarkable. The early growth rises almost perpendicularly above the beaks to a point, the succeeding growth forming its symphynote fold in a horizontal line, sets off much below the apex of the first growth. The whole presents the appearance of a part being broken out. This, however, is by no means the case. It is a character, and we may observe it in a less degree, but still in a perfect manner in the very young of the *U. levissimus*, (nobis,) which usually if not always at the second growth on the wing, takes a new starting point to form the fold over the ligament. The cardinal teeth are very remarkable, presenting but a small cleft, while the crenulations fill up the space connected with the lateral tooth, in this resembling the *Iridina*. The margin anterior to the beaks presents the appearance of there having been a wing. Immediately before the cardinal tooth there is a remarkable angular notch in the nacre filled up with laminated epidermal matter. The anterior cicatrices have the peculiarity mentioned in the *U. cucumoides*, but the three cicatrices are here perfectly distinct. The epidermis is minutely striate over most of the disk; but over the middle part, and on the wing, there may be observed with a lens numerous very remarkable, minute, round granulations.

Dr. Von den Busch informs me, that he obtained this shell from his friend Mr. Gruner, who, from "its similarity with a dolphin," proposed the name of *delphinus*, which I have adopted. As the vessel which brought this shell also visited some of the islands of the Indian Ocean, Mr. Gruner thinks there may be some doubt of its inhabiting New Holland.*

* Since this paper went to press, a letter received from Dr. Von den Busch, informs me that this shell came from the "river Souzi, on the coast of Malacca."

UNIO PUSILLUS. Plate 18, Fig. 36.

Testâ ellipticâ, subcompressâ, posticè angulatâ; valvulis subtenuibus; natibus subprominentibus; epidermide tenebroso-fuscâ, politâ; dentibus cardinalibus minimis; lateralibus longis subcurvisque; margaritâ albâ et iridescente.

Shell elliptical, rather compressed, angular behind; valves rather thin; beaks rather prominent; epidermis dark brown, polished; cardinal teeth very small; lateral teeth long and somewhat curved; nacre white and iridescent.

Hab. Ogechee River, Georgia, Major Le Conte.

My Cabinet, and Cabinet of Major Le Conte.

Diam. .5, Length .7, Breadth 1.2 inches.

Shell elliptical, rather compressed, angular behind; umbonial slope angular; substance of the shell rather thin; beaks rather prominent; ligament small and thin; epidermis dark brown, darker on the posterior slope; polished, furnished with small obscure rays; cardinal teeth very small; lateral teeth long and somewhat curved; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed on the under side of the plate between the cardinal and lateral teeth; cavity of the shell small; cavity of the beaks very shallow and angular; nacre white and iridescent.

Remarks.—Some years since several specimens of this shell were kindly sent to me by Major Le Conte. Fearing that they were young shells of some known species, I deferred describing them. I have not since been able to place them with any known species, and am now persuaded that they are distinct. This species is somewhat allied to *U. complanatus*.

UNIO JAVANUS. Plate 18, Fig. 37.

Testâ ellipticâ, subinflatâ, valdè inæquilaterali, posticè subbiangulatâ; valvulis subcrassis; natibus vix prominentibus; epidermide luteo-fuscâ; dentibus cardinalibus minimis; lateralibus longis curvisque; margaritâ albâ et iridescente.

Shell elliptical, rather inflated, very inequilateral, subbiangular behind; valves rather thick; beaks scarcely prominent; epidermis yellowish-brown; cardinal teeth very small; lateral teeth long and curved; nacre white and iridescent.

Hab. Java. G. Von den Busch, M. D.

My Cabinet, and Cabinet of Dr. Von den Busch of Bremen.

Diam. .8, Length 1.3, Breadth 2.2 inches.

Shell elliptical, rather inflated, very inequilateral, subbiangular and compressed behind; substance of the shell rather thick; beaks scarcely prominent; ligament rather short and thin; epidermis smooth, shining, yellowish brown, very dark on the posterior slope; cardinal teeth very small, double in the right, and single in the left valve; lateral teeth long and curved; anterior cicatrices confluent; posterior cicatrices confluent; dorsal cicatrices placed under the plate between the cardinal and lateral teeth; cavity of the shell rather deep; cavity of the beaks rather shallow; nacre white and iridescent.

Remarks.—This species has in its exterior somewhat the appearance of a small *Anodonta fluviatilis*, (nobis.) The posterior and dorsal margins are sinuous. The first grown is large. The second and third are approximate. The beaks of the only specimen I have before me are eroded, but the small undulations visible on the posterior slope induce me to believe that when perfect individuals are observed, the tip will be found to be finely undulate. The cardinal teeth are remarkably small.



UNIO ORIENTALIS. Plate 18, Fig. 38.

Testâ transversâ, subinflatâ, valdè inæquilateralî; valvulis subcrassis; natibus subprominentibus, ad apices undulatis; epidermide luteâ, nitidâ; dentibus cardinalibus longis; lateralibus longis subcurvisque; margaritâ albâ et iridescente.

Shell wide, somewhat inflated, very inequilateral; valves somewhat thick; beaks slightly prominent, undulate at the tip; epidermis yellow, shining; cardinal teeth long; lateral teeth long and somewhat curved; nacre white and iridescent.

Hab. Java.? G. Von den Busch, M. D.

My Cabinet, and Cabinet of Dr. Von den Busch.

Diam. .4, Length .7, Breadth 1.5 inches.

Shell wide, somewhat inflated, very inequilateral, angular on the umbonial slope, substance of the shell somewhat thick; beaks slightly prominent, with small undulations at the tip; umbonial slope with two raised lines and two yellow rays on each valve diverging from the beak; ligament rather long and thin;

epidermis yellow, inclining to greenish brown, smooth and shining; cardinal teeth long and compressed; lateral teeth long and somewhat curved; anterior cicatrices confluent; posterior cicatrices confluent; dorsal cicatrices placed on the centre of the cavity of the beaks; cavity of the shell rather shallow; cavity of the beaks shallow and subangular; nacre pearly white and very iridescent.

Remarks.—This species in outline resembles the *U. pictorum*, Lam. and *Unio Corrianus*, nobis. It was sent to me from Bremen by Dr. Von den Busch, who thinks it came from Java, but is not sure of its *habitat*. In the two specimens before me the rays on the posterior portion are very distinct.

MARGARITANA VONDENBUSCHIANA. Plate 18, Fig. 39.

Testâ obovatâ, compressâ, inæquilaterali; valvulis tenuibus; natibus subprominentibus; epidermide luteo-fuscâ; dentibus cardinalibus parvis, tuberculatis; margaritâ albâ et iridescente.

Shell obovate, compressed, inequilateral; valves thin; beaks somewhat prominent; epidermis yellowish-brown; cardinal teeth small, tuberculate; nacre white and iridescent.

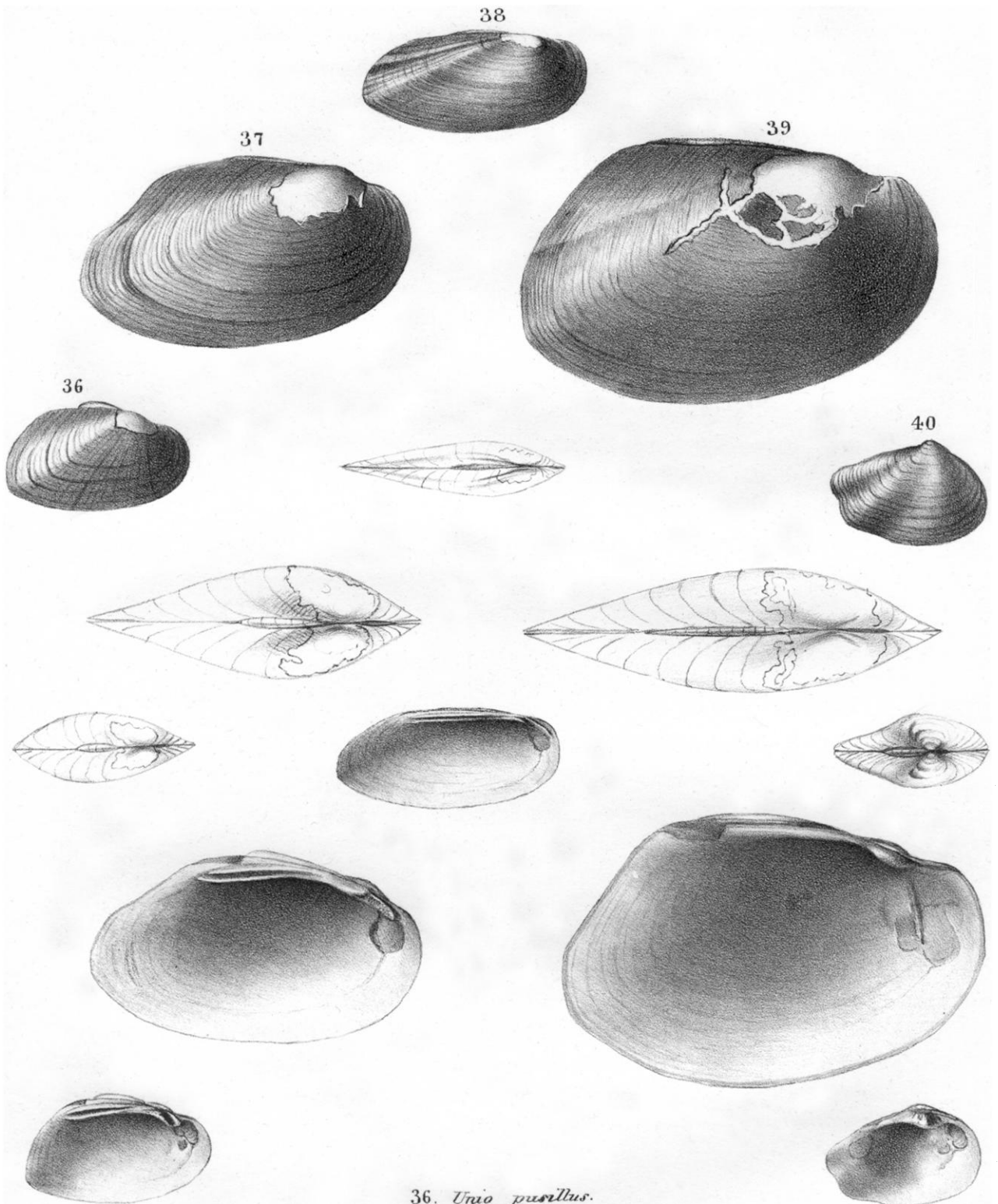
Hab. Java. G. Von den Busch, M. D.

My Cabinet, and Cabinet of Dr. Von den Busch of Bremen.

Diam. .8, Length 1.8, Breadth 2.8 inches.

Shell obovate, compressed, inequilateral; substance of the shell thin; beaks somewhat prominent; ligament long and thin; epidermis yellow, brown, obscurely rayed, darker on the posterior slope and lighter towards the basal margin; cardinal teeth small, consisting of an irregular tubercle; anterior cicatrices confluent; posterior cicatrices confluent; dorsal cicatrices placed in a row across the cavity of the beaks; cavity of the shell shallow; cavity of the beaks very small; nacre white and iridescent.

Remarks.—The form of the teeth in this shell places it near to the genus *Anodonta*. The enlargement of this part is greater than in the *Alasmodonta edentula*, Say, (*Anodon areolatus*, Swainson,) which I have, in my synopsis, placed with the *Anodontæ*. It, in fact, falls into that division which d'Orbigny has made under the name of *Monocondylæa*, and is somewhat like his species *fossiculifera*. I name it after Dr. Von den Busch, to whose kindness I am indebted for the specimen now described.



36. *Unio pusillus*.
 37. *Unio Javanus*.
 38. *Unio Orientalis*.
 39. *Margaritana Vandenbuschiana*.
 40. *Margaritana Curreyana*.

MARGARITANA CURREYIANA. Plate 18, Fig. 40.

Testâ triangulari, subcompressâ, emarginatâ, sulcatâ; valvulis crassis; natibus subprominentibus, ad apices undulatis; epidermide luteo-fuscâ; dentibus cardinalibus magnis; margaritâ albâ et iridescente.

Shell triangular, somewhat compressed, emarginate, sulcate; valves thick; beaks rather prominent, undulated at the tip; epidermis yellowish brown; cardinal teeth large; nacre white and iridescent.

Hab. Stone's River, Tenn. Dr. Currey of Nashville.

My Cabinet, and Cabinets of Dr. Currey, Dr. Troost and Mr. Edgar.

Diam. .5, Length .7, Breadth 1 inch.

Shell triangular, somewhat compressed or flattened on the side, emarginate at the basal and posterior basal margins, furrowed on the posterior slope; substance of the shell thick, thinner before; beaks rather prominent, with large undulations at the tip, nearly medial; ligament short and rather thick; epidermis yellowish brown; umbonial slope carinate; posterior slope flattened; cardinal teeth large, one closing in behind the other; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed under the cardinal tooth; cavity of the shell very small; cavity of the beaks angular and shallow; nacre white and iridescent.

Remarks.—A single specimen of this species of *Margaritana* was among the shells from Dr. Currey. He had found two or three only, all of which were of the same diminutive size, and, like mine, much eroded. It is about the size of the *U. fabalis*, (nobis,) and has some resemblance to it. If it were not separated generically from it, the furrow on the posterior slope causing two oblique folds would at once distinguish it. It is a very solid shell, and the teeth are robust. I name it after Dr. Currey, to whose kindness I am indebted for the possession of the shell.

ANODONTA ARGENTEA. Plate 19, Fig. 41.

Testâ ellipticâ, inflatâ, transversâ; valvulis tenuibus; natibus prominulis; apicibus minutè undulatis; epidermide fuscâ, radiatâ; margaritâ argenteâ et iridescente.

Shell elliptical, inflated, wide; valves thin; beaks rather prominent; apices minutely undulate; epidermis brown, radiated; nacre silvery and iridescent.

Hab. Stone's River, Tenn. Dr. Currey.

My Cabinet, and Cabinet of Dr. Currey.

Diam. 1.2,

Length 1.5,

Breadth 2.9 inches.

Shell elliptical, inflated, wide; substance of the shell thin; beaks rather prominent, with two or three small undulations at the tip; ligament thin and rather long; epidermis brown with dark green rays over the disk; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices none; cavity of the shell very deep; cavity of the beak very shallow; dorsal line slightly curved, being in the left valve elevated under the beak in the form of a lamellar tooth; nacre silvery and iridescent.

Remarks.—In form this species is closely allied to *An. Ferussaciana*, (nobis.) Its nacre is, however, more silvery and thicker, and it has dark rays.

ANODONTA HARPETHENSIS. Plate 19, Fig. 42.

Testâ ellipticâ, inflatâ, carinatâ; valvulis tenuibus; natibus subprominentibus; apicibus undulatis; epidermide luteâ et viride; margaritâ salmonis colore tinctâ; margine lato.

Shell elliptical, inflated, carinate; valves thin; beaks rather prominent; apices undulated; epidermis yellow and green; nacre salmon-coloured; margin broad.

Hab. Harpeth River, Tenn. S. M. Edgar.

My Cabinet, and Cabinets of Mr. Edgar and Dr. Troost.

Diam. 1.8,

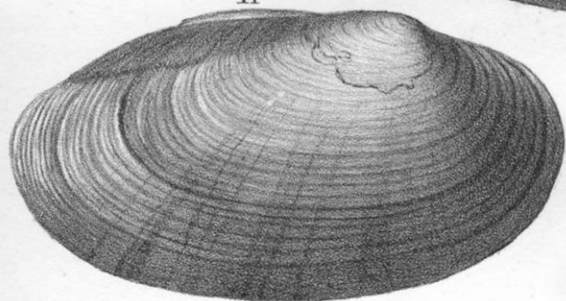
Length 2.3,

Breadth 4.2 inches.

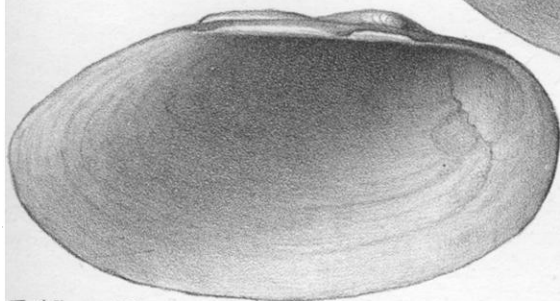
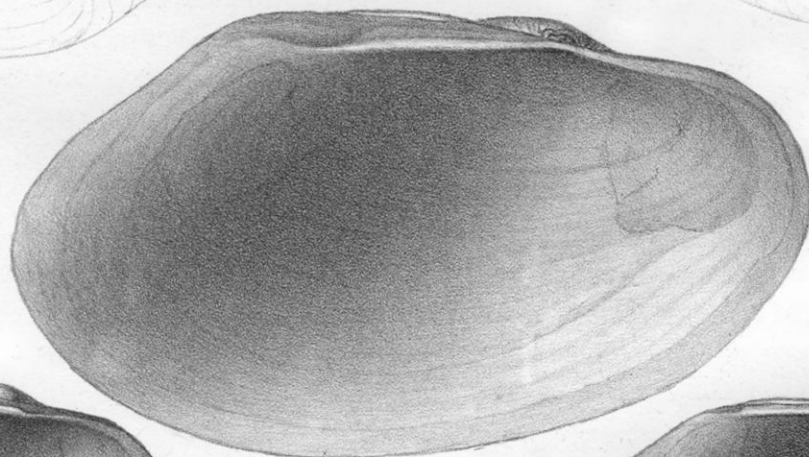
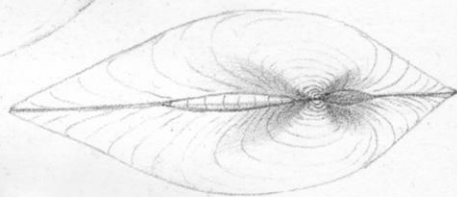
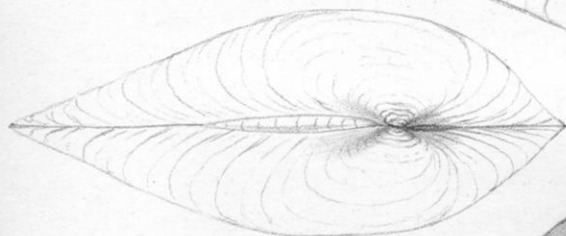
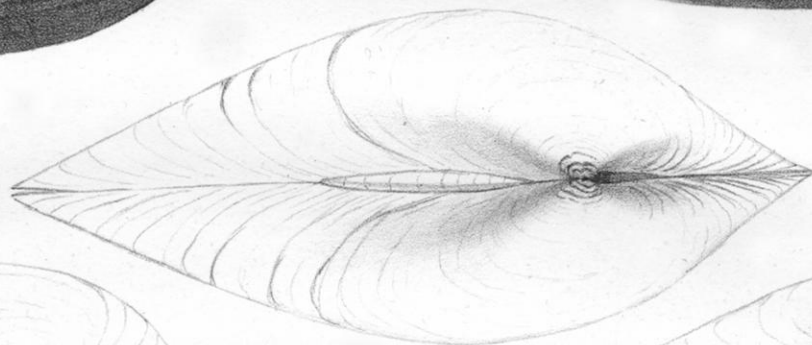
Shell elliptical, inflated, carinate; substance of the shell thin; beaks rather prominent, with a double undulation at the apices; ligament very small and thin; epidermis yellow with green bands; anterior cicatrices confluent; posterior cicatrices confluent; dorsal cicatrices none; cavity of the shell deep and rounded; cavity of the beaks very shallow; dorsal line irregularly curved; nacre beautifully salmon-coloured, having a deep margin.

Remarks.—But a single specimen of this species has come under my notice. In its general form it resembles *An. decora*, (nobis.) It is, however, a smaller species, has a broader margin, and is less inflated. The alternate bands of yellow and green give it an agreeable aspect. The nacre is of a delicate colour and very satin-like.

41



43.



41. *Anodonta argentea*.
 42. " *Harpethensis*.
 43. " *ferruginea*.

on stone by J.T. French.

ANODONTA FERRUGINEA. Plate 19, Fig. 43.

Testâ ellipticâ, inflatâ; valvulis tenuibus; natibus prominentibus, ad apices minutè undulatis, ferrugineis; epidermide tenebroso-fuscâ, politâ; margaritâ cœruleo-albâ et iridescente.

Shell elliptical, inflated; valves thin; beaks prominent, minutely undulate at the tips, ferruginous; epidermis dark brown and polished; nacre bluish-white and iridescent.

Hab. Simon's Creek, Indiana. T. G. Lea.

My Cabinet, and Cabinet of T. G. Lea.

Diam. .1, Length 1.3, Breadth 2.4 inches.

Shell elliptical, inflated, posterior margin biangular; substance of the shell thin; beaks ferruginous, prominent, with three or four nearly concentric small folds at the tip; ligament long and thin; epidermis dark brown and shining; anterior cicatrices confluent; posterior cicatrices confluent; dorsal cicatrices placed nearly in the centre of the cavity of the beaks; cavity of the shell deep and rounded; cavity of the beaks shallow; dorsal line slightly curved under the beaks; nacre bluish-white and iridescent.

Remarks.—This is a small species with remarkably ferruginous beaks, and dark brown, sometimes greenish epidermis. Indistinct rays may be observed on some individuals. The lines of growth are dark, and in some specimens the basal margin is disposed to be emarginate. It is somewhat allied to *An. undulata*, Say, but differs very much in colour and undulations of the beaks.

ANODONTA FOOTIANA. Plate 20, Fig. 44.

Testâ ellipticâ, inflatâ, inæquilaterali; valvulis subtenuibus; natibus subprominentibus, ad apices undulatis; epidermide luteo-fuscâ; margaritâ cœruleo-albâ et iridescente.

Shell elliptical, inflated, inequilateral; valves thin; beaks rather prominent, undulate at the tips; epidermis yellowish-brown; nacre bluish white and iridescent.

Hab. Vicinity of Fort Winnebago. Dr. Foot.

My Cabinet.

Diam. 1.2, Length 1.9, Breadth 3.3 inches.

Shell elliptical, inflated, inequilateral, angular behind; substance of the shell rather thin; beaks rather prominent, undulate at the tip; ligament rather short and thin; epidermis yellowish-brown; anterior cicatrices confluent; posterior

cicatrices confluent; dorsal cicatrices none; cavity of the shell rather deep and rounded; cavity of the beaks shallow; dorsal line rather curved; nacre bluish-white and iridescent.

Remarks.—Two perfect individuals, and two valves of this species were received among other specimens of the *Naiades* from Dr. Foot of the United States Army. This species seems to be allied to *An. fragilis*, Lam., but is a larger and stronger shell. The lines of growth are distinct and very close together.

ANODONTA MARYATTANA. Plate 20, Fig. 45.

Testâ transversâ, valdè inflatâ, gibbosâ, valdè inæquilaterali; valvulis tenuibus; natibus prominentibus, ad apices undulatis; epidermide virido-luteâ; margaritâ argenteâ et iridescente.

Shell wide, very much inflated, gibbous, very inequilateral; valves thin; beaks prominent, undulated at the tip; epidermis greenish yellow; nacre silvery and iridescent.

Hab. Vicinity of Fort Winnebago. Capt. Maryatt, R. N.

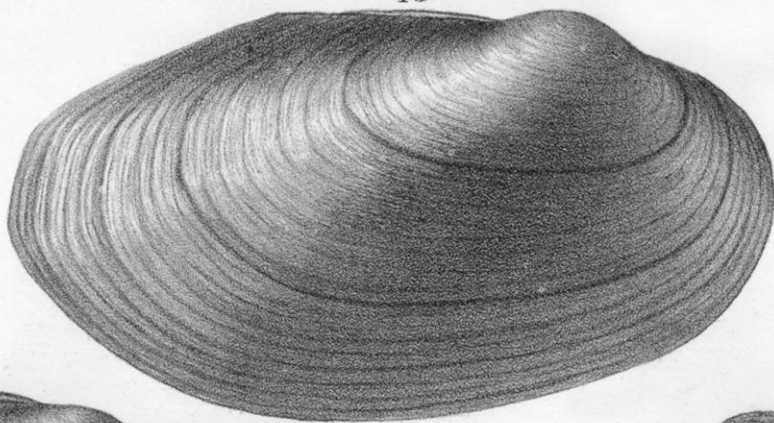
My Cabinet.

Diam. 1.8, Length 2.2, Breadth 4 inches.

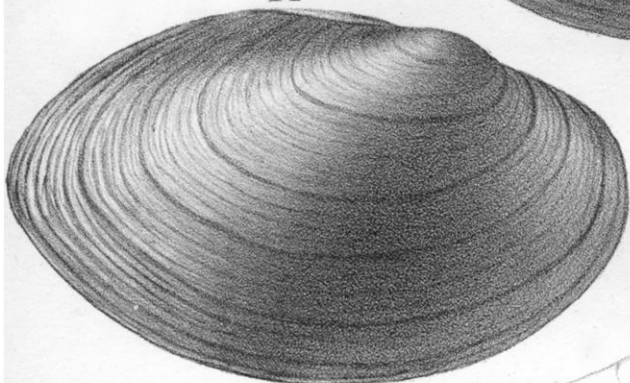
Shell wide, very much inflated, gibbous, very inequilateral; substance of the shell very thin and transparent; beaks prominent and doubly undulate at the tip; ligament thin and long; epidermis greenish-yellow; anterior cicatrices confluent; posterior cicatrices confluent; dorsal cicatrices none; cavity of the shell very deep; cavity of the beaks rather deep and rounded; dorsal line slightly curved; nacre silvery and iridescent.

Remarks.—Among many fine specimens of the *Naiades* brought by Capt. Maryatt from a tour up the Mississippi, &c., was a single specimen of this *Anodonta*. It is more inflated than any species I am acquainted with except the *An. gibbosa*, Say. Like it, it has that irregular swelling over the portion embracing the umbonial slope. It differs in being more transverse, and being devoid of rays. The nacre is remarkably thin, silvery and iridescent. The marks of growth are very distinct and widely separate.

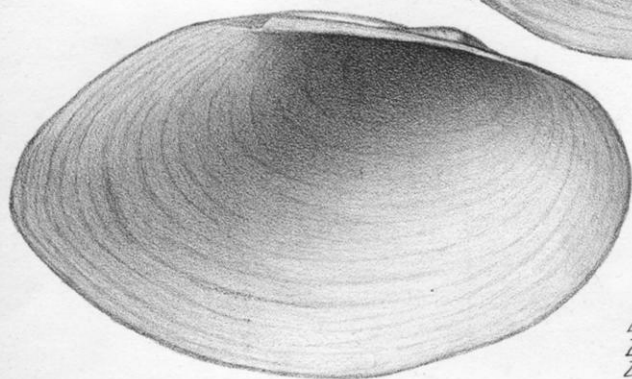
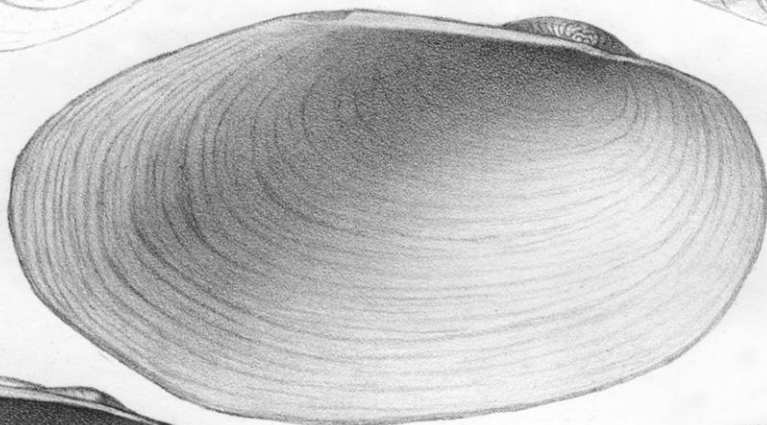
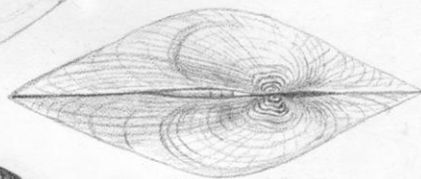
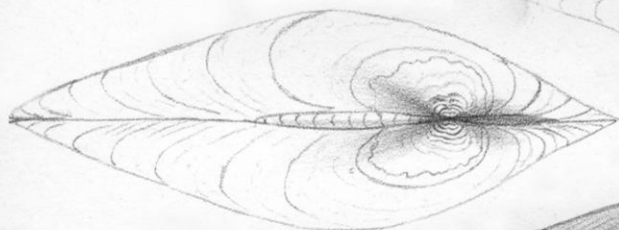
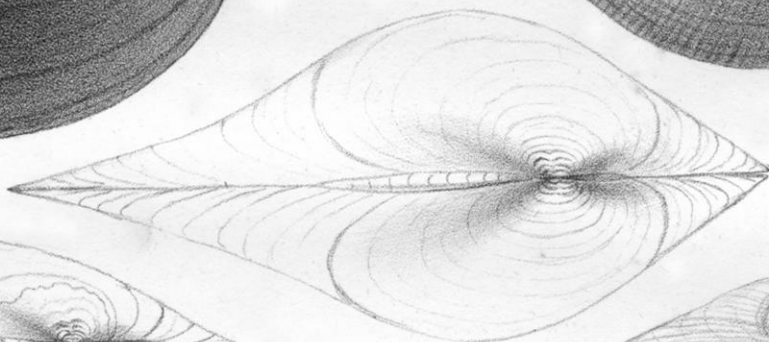
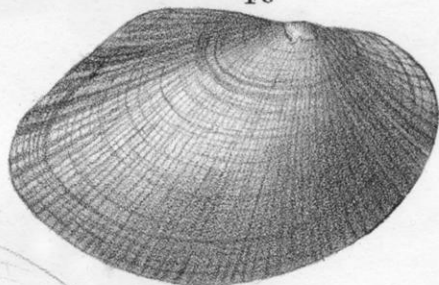
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44



46



44. *Anodonta Footiana*.
45. " *Maryallana*.
46. " *Couperiana*.
on stone by J.T. French.

ANODONTA COUPERIANA. Plate 20, Fig. 46.

Testâ ellipticâ, valdè inflatâ, gibbosâ; valvulis tenuibus; natibus planulatis, undulatis; epidermide virido-luteâ, obsoletè radiatâ; margaritâ cæruleo-albâ et iridescente.

Shell elliptical, very much inflated, gibbous; valves thin; beaks flattened and undulated; epidermis greenish-yellow, obsoletely radiate; nacre bluish-white and iridescent.

Hab. Hopeton, near Darien, Georgia. J. H. Couper, Esq.

My Cabinet.

Diam. .9, Length 1.5, Breadth 2.1 inches.

Shell elliptical, smooth, polished, very much inflated, gibbous and swollen from the beaks to the basal margin, flattened behind the beaks; basal margin much rounded; substance of the shell very thin; beaks flattened and finely undulate; ligament rather long and very thin; epidermis greenish-yellow, with numerous small rays, darker on the posterior slope, where the rays are very distinct and capillary; anterior cicatrices confluent; posterior cicatrices confluent; dorsal cicatrices none; cavity of the shell very deep and rounded; cavity of the beaks very small; dorsal line slightly curved; nacre bluish-white and iridescent.

Remarks.—This is a very distinct species, and I dedicate it to my friend Mr. Couper, who has done much to elucidate the Natural History of his vicinity. It is remarkable in its form, and more nearly allied to *An. gibbosa*, Say, than any other species with which I am acquainted. It differs in being more transverse, being less inflated, having flatter beaks, in being smaller and in having the swell of the inflation more towards the basal margin. Indistinct capillary rays covering the whole disk, diverge from the beaks, and are more distinct on the posterior slope where there are generally two yellow rays. The beaks are so much flattened as scarcely to rise above the dorsal margin.*

* Accompanying this species I received from Mr. Couper several specimens of an *Anodonta* which so closely resembles my specimens of *Anodonta incerta*, from the Ohio, that I conclude they must be the same species. If it prove so, it will be the first which I have seen coming from the eastern side of the Allegheny range.

MELANIA BOYKINIANA. Plate 6, Fig. 59.

Testâ granulatâ, elevatâ, subturritâ, ad carinam tuberculatâ; suturis impressis; aperturâ elongatâ, ovatâ.

Shell granulate, elevated, somewhat turrited, at the carina tuberculate; sutures impressed; aperture long, ovate.

Hab. Chattahoochee River, Columbus, Geo. Dr. Boykin.

My Cabinet.

Diam. 3.8,

Length 9.4 of an inch.

Remarks.—This is a very distinct and remarkable species. Although many individuals differ, the prevailing character is to have the whole of the whorls covered with numerous granulate, revolving lines, generally bearing a purple or brown line. In some the tubercles of the carina assume the character of folds.

MELANIA CATENOIDES. Plate 6, Fig. 60.

Testâ granulatâ, elevato-conoideâ, lineatâ; apice plicatâ; suturis parvis; aperturâ ovatâ.

Shell granulate, elevated, conoidal, lined; apex folded; sutures small; aperture ovate.

Hab. Chattahoochee River, Columbus, Geo. Dr. Boykin.

My Cabinet.

Diam. .43,

Length .93 of an inch.

Remarks.—This species differs from the *M. Boykiniana*, in being without tubercles and carina. The coloured revolving hair-like lines are numerous, and being pitted, present the appearance of a chain. Some of the old specimens are quite black, while the younger ones are green or yellow. In some cases where the apex is eroded or worn off and the shell black and old, it looks like *M. Virginica*, (Say,) as no grains can be observed.

CAROCOLLA CUMBERLANDIANA. Plate 6, Fig. 61.

Testâ lenticulatâ, carinatâ, striatâ, albidâ, fusco-notatâ, latè umbilicatâ, ad carinam supernè et infernè impressâ; anfractibus quinis; aperturâ angulatâ, intus sulcatâ; labro acuto.

Shell lenticular, carinate, striate, whitish, brown-spotted, widely umbilicate, impressed above and below the carina; whorls five; aperture angular, within furrowed; lip acute.

Hab. Cumberland Mountains, near Jasper, Tenn. Dr. Currey.

My Cabinet, and Cabinets of Dr. Currey and Mr. Edgar.

Diam. .54, Length .14 of an inch.

Remarks.—Among many species of land shells which I owe to Dr. Currey's kindness, were two individuals of this Carocolla, which does not appear to have been before noticed. It has some resemblance to *H. alternata*, (Say,) but may at once be distinguished by its depressed, flat, lenticular form and carina. It is a very interesting species, and has a remarkable furrow above and below the carina: all the whorls, are visible in the umbilicus, and are striate all over.

CYCLOSTOMA CINCINNATIENSE. Plate 6, Fig. 62.

Testâ elevato-conicâ, lævi, nitidâ, diaphanâ, umbilicatâ; anfractibus senis; apice obtuso; labro margine reflexo.

Shell elevated in the form of a cone, smooth, shining, transparent, umbilicate; whorls six; apex obtuse; margin of the lip reflected.

Hab. Vicinity of Cincinnati. T. G. Lea.

My Cabinet, and Cabinet of T. G. Lea.

Diam. .13, Length .22 of an inch.

Remarks.—A small species which has been sent to me several times by my brother, who seems first to have observed it. It is about the size and nearly of the colour of *Paludina limosa*, Say. It is found on wet earth and roots of trees, on the margin of a small stream near Cincinnati.

Continuation of Mr. Lea's Paper on Fresh Water and Land Shells.

Read February 19th, 1841.

IN a paper read before the Society July 15th, 1837, I gave the result of some observations made in regard to the anatomy, gestation and geographical distribution of the family *Naiades*, and I mentioned at the time that it was my intention to pursue the subject. Circumstances, however, have prevented my undertaking the thorough examination of the habits of the species and their structure, which I intended. At my request, however, my brother T. G. Lea has made some valuable observations during the last three years at Cincinnati, where these shells are numerous, and the size often large. A digest of these observations has been made by him, and the result, though not entirely satisfactory, will make some advance towards a knowledge of the periods of some of the species.

Sexual difference is no longer a matter of doubt,* but the period and mode of *impregnation*, as well as the length of *gestation* and the time of *parturition*, are either unknown or but partially understood.

At page 52, Vol. 6, of the Transactions, I mentioned having seen in a single instance the ejection of a number of sacciform oviducts in quite a rapid succession from the *Unio complanatus*. Dr. Kirtland has since, as he informs me by letter, "twice seen the females of *Unio cylindricus* throw off their ova *per saltum*, or with a kind of jet. The portions discharged were collections of a vast number of individuals, aggregated in oblong masses, conforming with the shape of the cells of the ovarium. Soon after they were discharged, they appeared to crumble to pieces, and the several individuals fell down among the sand."

These observations corroborate mine, and we may conclude that we have one fact established in two species in regard to parturition.

The *Anodontæ*, so far as I have been able to observe them, are ovoviviparous, but, whether they, as some species of the *Uniones* do, attach themselves when young by a byssus, I have not had the means to determine. In Silliman's Journal for July, 1840, Dr. Kirtland published an interesting account of this

* Transactions, vol. vi. page 49.

attachment with figures. He had communicated the fact of his observations to me by letter several years before, and I then informed him that I had in a single instance some years before observed it in the Schuylkill.

The following tabular view and notes form the matter digested by my brother, from his extensive notes during the years 1838, '39, and '40, mentioned above.

No. 1.	No. 2.	No. 3.	No. 4.
No ova found in the oviducts. The ovaria not examined except in <i>Unio Æsopus</i> , which had ova in the ovarium. Examined in the Autumn of 1838.	Ova in the ovarium in the Autumn of 1839.	Ova in the oviducts in the Autumn of 1838.	Ova in the oviducts, at various dates in 1840.
Specimens.			March.
<i>Unio Æsopus</i> , 1	<i>U. cylindricus</i> , 6	<i>U. perplexus</i> , 16	<i>U. circulus</i> , 1
varicosus, 16	pyramidatus, 2	foliatus, 18	occidens, 4
metanever, 26	undatus, 5	irroratus, 12	compressus, 10
cornutus, 40	varicosus, 2	retusus, 7	luteolus, 11
cylindricus, 18	tuberculatus, 3	securis, 8	tenuissimus, 1
cuneatus, 20	gibbosus, 2	phaseolus, 8	<i>Marg. rugosa</i> , 1
gibbosus, 19	pustulosus, 7	ovatus, 1	calceola, 1
sulcatus, 25	pustulatus, 3	gracilis, 3	complanata, 2
pileus, 7	cornutus, 6	alatus, 1	<i>An. Wardiana</i> , 2
triangularis, 5	asperrimus, 3	lævissimus, 4	incerta, 2
pustulatus, 5	plicatus, 1	tenuissimus, 5	
pustulosus, 18	metanever, 1	ridibundus, 3	May 16.
asperrimus, 19	cuneatus, 2	ellipsis, 4	<i>U. lachrymosus</i> , 2
tuberculatus, 7	<i>Æsopus</i> , 2	circulus, 1	Some minute ova were also found in the ovaria of these two specimens.
trigonus, 6	In March, 1840.	crassus, 7	
elegans, 12	<i>U. parvus</i> , 10	rectus, 1	
formosus, 9	lachrymosus, 7	personatus, 1	
ebenus, 14		multiplicatus, 4	
fragosus, 15	In July.	occidens, 3	July and August.
Cooperianus, 40	<i>U. rubiginosus</i> ,* 1	compressus, 1	<i>U. plicatus</i> , 1
monodontus, 7		camelus, 4	patulus, 5
verrucosus, 7	* Six others of this species, taken at the same time, had ova in the oviducts. See column, No. 4.	orbiculatus, 3	rubiginosus, 6
undatus, and } pyramidatus, } 30		multiradiatus, 1	multiradiatus, 2
lachrymosus, 5		<i>Marg. complanata</i> , 1	fabalis, 1
dehiscens, 7		rugosa, 2	circulus, 1
plicatus, 8		<i>An. edentula</i> , 6	gibbosus, 1
		Ferussaciana, 4	luteolus, 1
		In Autumn, 1839.	<i>An. plana</i> , 2
		<i>U. lævissimus</i> , 2	
		multiplicatus, 1	Sept. 5th.
		alatus, 1	<i>U. compressus</i> , 2
		rectus, 3	
		plicatus, 3	Oct. 12th.
		crassus, 1	<i>U. occidens</i> , 4
		ovatus, 1	luteolus, 2
		<i>An. plana</i> , 21	<i>Marg. rugosa</i> , 1
		incerta, 3	<i>An. edentula</i> , 1
			Ferussaciana, 2

"In column No. 1, no ova were found in the oviducts of any of the enumerated species. They were carefully examined, as regards the oviducts, but as to the ovaria, they were not, except in the single specimen of *Unio Æsopus*. If the ovaria had been examined, no doubt the ova would have been found in all of them, exclusive of *sulcatus*, *pileus* and *formosus*. They were all taken from September 19th, to November 13th, 1838.

"In column No. 2, many of the species contained in column No. 1, were examined again in the Autumn of 1839, and found to have ova in the ovaria and none in the oviducts. The others in column No. 1, that I had not an opportunity to examine would, I think, have been found in the same condition. In this column it may be observed, that *U. parvus* and *lachrymosus* had ova in the ovaria in March, also a single specimen of *U. rubiginosus* taken at Waynesville in July. As this was not as advanced as six others taken at the same time, their period is probably irregular.

"Column No. 3, contains the species observed with the oviducts charged with young in the Autumn of 1838 and '39.

"Column No. 4, contains the species with oviducts charged with young at various periods of 1840.—In columns No. 1, and 2, no ova were found in the oviducts.

"I have not been able to come to a satisfactory conclusion respecting the gestation and period at which the *Uniones* discharge their young; that it varies between some groups of the species, I have no doubt.—For instance, take all those in columns No. 1 and 2, which late in the Autumn have no ova transferred to the oviducts, while other groups, in columns No. 3 and 4, have the oviducts charged with young at the same season. The latter probably discharge in the Spring, or early Summer, and the former later.

"In column No. 2, is a *U. plicatus* with ova in the ovarium in Autumn; in No. 4, is one with ova in the ducts in July. Suppose this to have discharged in August, it makes a very long gestation.

"In column No. 4, is a *U. circulus*, with ova in the oviducts, in March, and another with ova in the oviducts, in July. The same species also in column No. 3, with ova in the oviducts, in Autumn. From this I would infer that it is irregular, or breeds more than once a year. In column No. 4, is a *U. luteolus*, with ova in the oviducts, in March, in August and in October. Some that I observed in August had their *branchiæ* so swollen, that they could not shut the valves close. In this case the animal would have discharged in a

short time. The same inference applies to this as to *circulus*. Of *U. occidents*, in column No. 4, you will see the same in March and October.

"Few of the species in columns 1 and 2 were found with ova in the oviducts. This is owing to the period at which they must be transferred from the ovarium, which, most likely, is in the spring. I have observed them until the end of November. After that, our river continues too high to take them until July or August. In the interval the young must be perfected and discharged. By reference to my notes, you will find the above facts in detail. The columns are arranged and generalized from them. My observations in 1838-39 and '40, are included in them, and only differ as the economy of the species itself may differ. There will not be found any contradiction.

"The ovarium constitutes much the largest portion of the body. It lies immediately above the foot, forming all the solid part of the body between it and the viscera. In a letter I sent you November 26th, 1838, were three views of a *U. multiplicatus*, the ovarium extending from the superior part of the foot *nearly* to the intestinal canal, and from behind and a little below the stomach to the connexion of the posterior muscle, forming, with the exception of the foot, the larger portion of the whole body. The integuments are thick, and on laying it open it has a fibrous interior with a gelatinous substance, in which are disseminated numerous ova.

"You will find in the notes sent to you in 1838 a description of *both* lobes of the branchiæ on each side, of two specimens of *U. multiplicatus* being charged. In the other specimens examined, but *one* lobe on each side was charged as usual. In another examination, in September, 1839, *both* lobes were charged. Thus, it appears they vary in this species, as they probably do also in *U. rubiginosus*."*

UNIO SAPOTALENSIS. Plate 21, Fig. 47.

Testâ ellipticâ, subinflatâ, inæquilaterali, posticè subbiangulatâ; valvulis crassis; natibus vix prominentibus; epidermide luteâ, densè radiatâ; dentibus cardinalibus subgrandibus; lateralibus magnis subrectisque; margaritâ subaureâ et valdè iridescente.

Shell elliptical, somewhat inflated, inequilateral, subbiangular behind; substance of the shell thick; beaks scarcely prominent; epidermis yellow, very much radiated; cardinal teeth rather large; lateral teeth large and nearly straight; nacre somewhat golden-coloured and very iridescent.

* The *U. rubiginosus* and *multiplicatus*, are the only species observed by my brother to be possessed of oviducts, in both pairs of the *branchiæ*.

Hab. Sapotal River, near Tlocatalpam, Mexico. Dr. Burrough.

Cabinet of Dr. Burrough.

Diam. .1,

Length 1.4,

Breadth 2.2 inches.

Shell elliptical, somewhat inflated, inequilateral, subbiangular behind, enlarged and somewhat carinate on the umbonial slope, flattened on the umbones and sub-emarginate at base; substance of the shell thick, thinner behind; beaks scarcely prominent; ligament rather short and thick; epidermis yellow, the whole disk being marked with green rays, darker on the posterior slope; cardinal teeth rather large, erect, single in the right and double in the left valve; lateral teeth large and nearly straight; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed in the centre of the cavity of the beaks; cavity of the shell shallow; cavity of the beaks small and angular; nacre somewhat golden-coloured and finely iridescent.

Remarks.—A single specimen only is before me. Its fine rich pearly lustre and beautiful iridescence are very remarkable. I have rarely seen any iridescence in a *Unio* so rich. It has some resemblance to *U. radiatus*, and *U. interruptus*, (nobis,) but may be distinguished from both by the flatness of the umbones and the raised umbonial slope.*

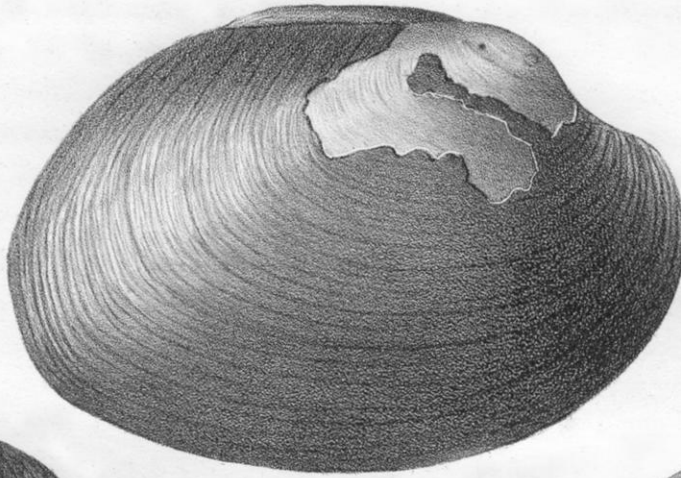
UNIO TECOMATENSIS. Plate 21, Fig. 48.

Testa ellipticâ, inflatâ, inæquilaterali, posticè subbiangulatâ; valvulis crassis; natibus subprominentibus; epidermide subnigrâ, nitida; dentibus cardinalibus magnis; lateralibus magnis subcurvisque; margaritâ vel purpureâ vel salmonis colore tinctâ et iridescente.

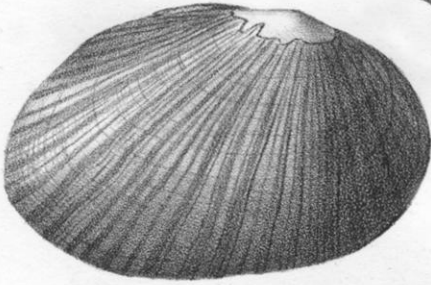
* In addition to the knowledge of the fresh water shells inhabiting the rivers and lakes of the southern part of North America, so assiduously obtained by Dr. Burrough, I am indebted to another friend, Dr. Blanding, for the interesting fact, that the species which I described under the names of *U. Nicklinianus*, (see Trans., vol. 5, page 28,) and *U. discus*, (see vol. 6, page 74,) inhabit the River Moctezuma, in Central America, with the *U. Tampicoensis*. I am indebted to Dr. Blanding, for specimens of these, and his Cabinet may be referred to, as well as Mr. Nicklin's, and Mr. Phillips'; these gentlemen having also received specimens from Dr. B. The *Nicklinianus* seems always to be white in its nacre, while the *discus* varies, some individuals being perfectly white, some rich salmon-coloured, and others of a deep purple. A single valve in my Cabinet displays all these colours.

In some of the specimens of *U. Nicklinianus*, there is a remarkable elevated line on the posterior slope, which in some cases interrupts the folds.

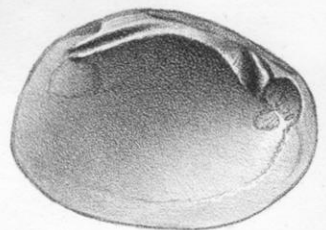
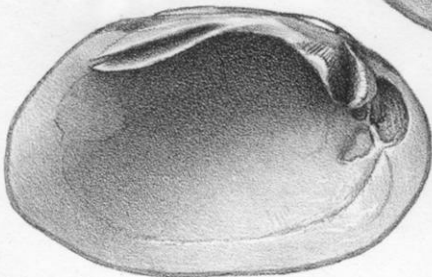
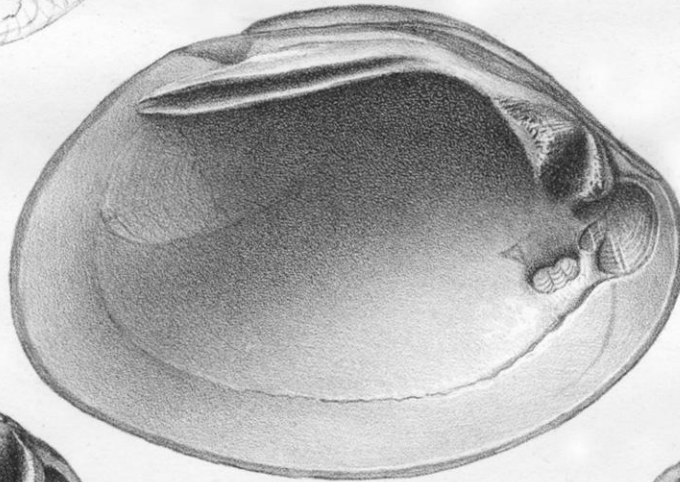
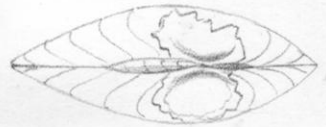
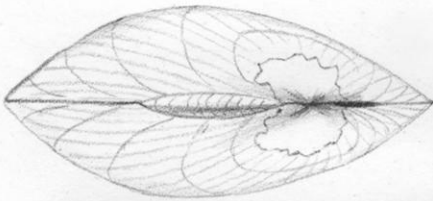
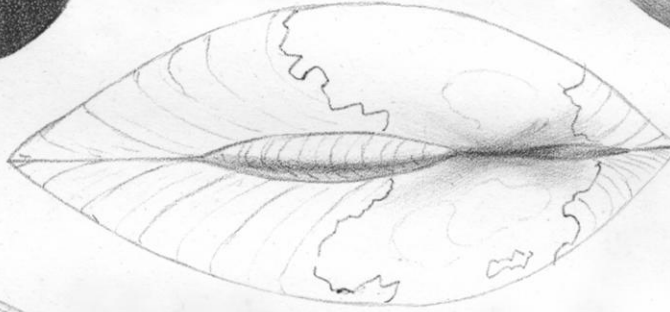
48



47



49



47. *Unio Sapotalensis.*
48. " *tecomatensis.*
49. " *georgianus.*
on stone by J.T. French.

Shell elliptical, inflated, inequilateral, subbiangular behind; substance of the shell thick; beaks somewhat prominent; epidermis nearly black, shining; cardinal teeth large; lateral teeth large and somewhat curved; nacre purple or salmon-coloured and iridescent.

Hab. Tecomate River, near Tlocatalpam, Mexico. Dr. Burrough.

My Cabinet, and Cabinet of Dr. Burrough.

Diam. 1.6, Length 2.5, Breadth 3.5 inches.

Shell elliptical, inflated, inequilateral, subbiangular behind; substance of the shell thick, thinner behind; beaks rather prominent; ligament long and thick; epidermis very dark, nearly black, shining, wrinkled towards the margin; cardinal teeth large, erect and double in both valves; lateral teeth large and somewhat curved; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices large and placed in a row immediately under the cardinal tooth; cavity of the shell rather deep and rounded; cavity of the beak rather deep and subangular; nacre purple or salmon-coloured and iridescent.

Remarks.—Two specimens only of this species were brought by Dr. Burrough, one of a fine salmon colour, the other of a deep purple. It probably occurs also perfectly white, resembling in this variety of colour many other species, particularly the *U. complanatus*. In form it resembles *U. crassus*, Say, but differs altogether in the colour of the epidermis and the colour of the nacre. I have seen no young specimens, and the beaks of those before me, being much eroded, their character cannot be ascertained. In the colour of the epidermis it resembles old individuals of *U. pliciferus*, (nobis,) but being without the folds and being less transverse, ought not to be confounded with that shell.

UNIO GEORGIANUS. Plate 21, Fig. 49.

Testâ ellipticâ, subcompressâ, inæquilaterali, posticè subangulatâ; valvulis subtenuibus; natibus subprominentibus; epidermide luteo-fuscâ; dentibus cardinalibus parvis; lateralibus brevibus rectisque; margaritâ albâ.

Shell elliptical, rather compressed, inequilateral, subangular behind; substance of the shell rather thin; beaks somewhat prominent; epidermis yellowish brown; cardinal teeth small; lateral teeth short and straight; nacre white.

Hab. Stump Creek, Geo. T. R. Dutton.

Cabinet of Mr. Dutton.

Diam. .6, Length 1.1, Breadth 1.6 inches.

Shell elliptical, rather compressed, inequilateral, subangular behind, somewhat carinate on the umbonial slope; substance of the shell thin, thicker before; beaks somewhat prominent; ligament short and thin; epidermis yellowish brown, finely striate, and with numerous marks of growth, apparently without rays; cardinal teeth small, single in the right and double in the left valve; lateral teeth short and straight with a direction over the cardinal tooth; anterior cicatrices distinct; posterior cicatrices distinct; dorsal cicatrices placed under the posterior part of the cardinal tooth; cavity of the shell small; cavity of the beaks rather shallow and angular; nacre white.

Remarks.—A single specimen only of this shell is before me. It possesses no remarkable characters, but is obviously distinct from any shell with which I am acquainted. It has some resemblance on one side to *U. Ravenelianus*, (nobis,) and on the other to *cariosus*, Say. The beaks being eroded, I am unable to say what kind of undulations, if any, they may have possessed.

UNIO DUTTONIANUS. Plate 22, Fig. 50.

Testâ valdè transversâ, cylindrâ, valde inæquilaterali, posticè angulatâ; valvulis subcrassis; natibus vix prominentibus; epidermide tenebroso-fuscâ, obsoletè radiatâ; dentibus cardinalibus minimis; lateralibus longissimis rectisque; margarita albâ et iridescente.

Shell very wide, cylindrical, very inequilateral, angular behind; substance of the shell rather thick; beaks scarcely prominent; epidermis dark brown, obsoletely radiated; cardinal teeth very small; lateral teeth very long and straight; nacre white and iridescent.

Hab. Ogechee Canal, Savannah, Geo. T. R. Dutton.

Cabinet of Mr. Dutton.

Diam. .7,

Length .1,

Breadth 2.8 inches.

Shell very wide, cylindrical, very inequilateral, angular behind; posterior slope wide, flattened, with two lines from the beaks to the posterior margin; substance of the shell rather thick; beaks scarcely prominent; ligament rather thick and long; epidermis dark brown and very obscurely rayed; cardinal teeth very small, tubercular; lateral teeth very long, thin and straight; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices small and placed in the centre of the cavity of the beaks; cavity of the shell deep and

rounded; cavity of the beaks very small and subangular; nacre white and iridescent.

Remarks.—In its outline this species resembles *U. folliculatus*, (nobis.) It differs in being more cylindrical and in having a much smaller cardinal tooth. The cardinal tooth is very remarkable for its small size, being little more than two small tubercles on the dorsal line. The only specimen before me is white: others may differ in colour. On the sides are a few obscure transverse folds. The breadth and flatness of the posterior slope is very remarkable.

UNIO BIGBYENSIS. Plate 22, Fig. 51.

Testâ subtriangulari, compressâ, inæquilaterali, posticè angulatâ; valvulis subcrassis; natibus prominentibus; epidermide luteâ, valdè radiatâ; dentibus cardinalibus magnis erectisque; lateralibus magnis subrectisque; margaritâ vel albâ vel salmonis colore tinctâ.

Shell sub-triangular, compressed, inequilateral, angular behind; substance of the shell rather thick; beaks somewhat prominent; epidermis yellow, very much rayed; cardinal teeth large and erect; lateral teeth large and nearly straight; nacre white or salmon-coloured.

Hab. Big Bigby Creek, Maury Co., Tenn. T. R. Dutton.

My Cabinet, and Cabinet of Mr. Dutton.

Diam. .8, Length 1.5, Breadth 2.1 inches.

Shell sub-triangular, compressed, inequilateral, angular behind; substance of the shell rather thick, thinner behind; beaks somewhat prominent, undulated at the tip; ligament rather long and thick; epidermis yellow, with numerous broad green rays; posterior slope somewhat carinate and free from rays; cardinal teeth large and erect, disposed to be double in both valves; lateral teeth large, thick and nearly straight; anterior cicatrices distinct; posterior cicatrices distinct; dorsal cicatrices placed under the plate, posterior to the cardinal tooth; cavity of the shell very shallow; cavity of the beaks shallow and angular; nacre white or salmon-coloured.

Remarks.—This species has a strong resemblance to *U. rubiginosus*, (nobis,) in its outline and in its nacre. They are both found occasionally white. When I described *rubiginosus*, I had not seen a specimen with a white nacre. The *Bigbyensis* differs from it in having numerous broad rays, while those on the

rubiginosus, when it is rayed at all, are usually very obscure. In the cardinal teeth they differ also; those of the *rubiginosus* being flatter, and more spread out. In its yellow epidermis and rays, the *Bigbyensis* resembles the *U. oviformis*, Con. That shell, however, is more oblique, and it may at once be distinguished by the large ovate lunule; the *Bigbyensis* apparently possessing none.

UNIO CROCATUS. Plate 22, Fig. 52.

Testâ ellipticâ, inflatâ, inæquilaterali, posticè angulatâ; valvulis tenuibus; natibus prominentibus; epidermide croceâ, radiatâ, nitidâ; dentibus cardinalibus parvis; lateralibus longis curvisque; margarita salmonis colore tinctâ et iridescente.

Shell elliptical, inflated, inequilateral, angular behind; substance of the shell thin; beaks prominent; epidermis saffron-coloured, radiated, shining; cardinal teeth small; lateral teeth long and curved; nacre salmon-coloured and iridescent.

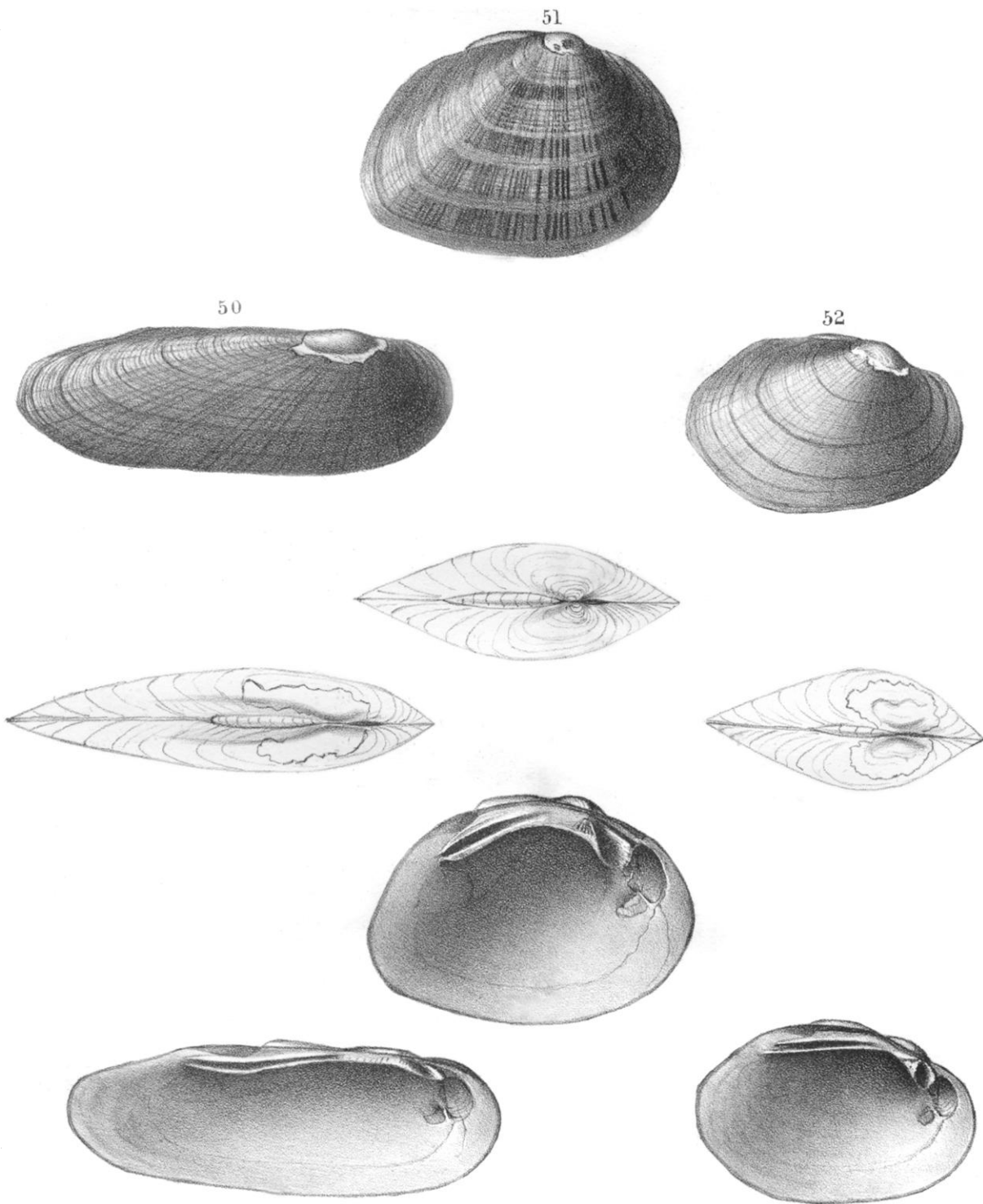
Hab. Savannah River, Geo. T. R. Dutton.

My Cabinet, and Cabinet of Mr. Dutton.

Diam. .8, Length 1.2, Breadth 1.8 inches.

Shell elliptical, inflated, inequilateral, angular behind, substance of the shell thin, thicker before; beaks prominent; ligament rather thin and short; epidermis saffron-coloured, smooth and shining, with linear rays and numerous regular lines of growth; cardinal teeth small, single in the right and double in the left valve; lateral teeth long and curved; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed in the centre of the cavity of the beaks; cavity of the shell deep; cavity of the beaks deep and angular; nacre salmon-coloured and iridescent.

Remarks.—Two specimens of this species are before me. One has numerous capillary lines radiating from the beak, while the other has but few and very indistinct ones. It is most nearly allied perhaps to *U. ochraceus*, Say; but may be distinguished by the colour of the epidermis, by the teeth being thicker, and by the inflation of the umbones. The posterior slope is without rays, and is somewhat rough.



50. *Unio Duttonianus*.
 51. " *Bigbyensis*.
 52. " *crocatus*.
 on stone by J.T. French.

UNIO RAJAHENSIS. Plate 23, Fig. 53.

Testâ triangulari, inflatâ, inæquilaterali, posticè angulatâ; valvulis crassis; natibus valdè prominentibus; epidermide tenebroso-fuscâ; dentibus cardinalibus magnis; lateralibus sublongis curvisque; margaritâ albâ et valdè iridescente.

Shell triangular, inflated, inequilateral, angular behind; substance of the shell thick; beaks very prominent; epidermis dark brown; cardinal teeth large; lateral teeth rather long and curved; nacre white and very iridescent.

Hab. The Rajah's Tank, Calcutta. Dr. Jay.

My Cabinet, and Cabinets of Dr. Jay and Dr. B. W. Budd of N. Y.

Diam. .8, Length 1.1, Breadth 1.4 inches.

Shell triangular, inflated, inequilateral, angular behind; posterior slope much flattened, cordate, with two curved impressed lines; umbonial slope carinate; beaks very prominent and solid; ligament short, thick and light brown; epidermis dark brown; cardinal teeth large, double in both valves; lateral teeth curved, being more bent near the cardinal tooth, disposed to be double in the right and to be treble in the left valve; anterior cicatrices distinct; posterior cicatrices distinct; dorsal cicatrices placed under the plate between the cardinal and lateral teeth; cavity of the shell rather deep and triangular; cavity of the beaks deep and triangular; nacre beautifully pearly white and very iridescent.

Remarks.—Two specimens of this species only were received from Calcutta by Dr. Jay. One is rather large and more inflated than the other. The beaks of both are eroded. When perfect they may be found to be undulate at tip like *U. corrugatus*, Lam. In the nacre it is very much like that shell, but differs totally in the outline, in its beaks and in being more inflated and more solid. The cleft of the cardinal tooth is nearly parallel with the dorsal line; the lateral teeth are remarkable for their duplication in one valve and triplication in the other.

UNIO CALLOSUS. Plate 23, Fig. 54.

Testâ ellipticâ, compressâ, inæquilaterali, posticè angulatâ; valvulis crassis; natibus prominentibus; epidermide luteo-fuscâ, nitidâ; dentibus cardinalibus parvis; lateralibus longis curvisque; margaritâ albâ et iridescente.

Shell elliptical, compressed, inequilateral, angular behind; substance of the shell thick; beaks prominent; epidermis yellowish brown, shining; cardinal teeth small; lateral teeth long and curved; nacre white and iridescent.

Hab. Ohio Canal, twelve miles below Columbus. Dr. Jay.

Cabinet of Dr. Jay.

Diam. .9, Length 1.4, Breadth 2.2 inches.

Shell elliptical, compressed, inequilateral, angular behind, carinate on the umbonal slope; substance of the shell thick; beaks prominent, ligament rather short and thick; epidermis yellowish brown, darker and wrinkled on the posterior slope; cardinal teeth small, double in both valves; lateral teeth very long and curved; anterior cicatrices distinct; posterior cicatrices distinct; dorsal cicatrices placed under the plate between the cardinal and lateral teeth; cavity of the shell shallow; cavity of the beaks small and angular; nacre white and iridescent.

Remarks.—A single specimen of this shell only is before me. It is without rays. The eroded state of the beaks prevents our knowing if it be undulate at the tip. In outline it resembles some varieties of *U. complanatus*. In the flatness of the sides it is allied to *U. phaseolus*, Hild. But it differs entirely from that species in not being flattened towards the beaks and in being without rays.

ANODONTA MONTEZUMA. Plate 23, Fig. 55.

Testâ obovatâ, subinflâtâ, valdê inæquilateralî; valvulis tenuibus; natibus prominentibus; epidermide luteâ viridique, rugosâ; margaritâ albâ et iridescente.

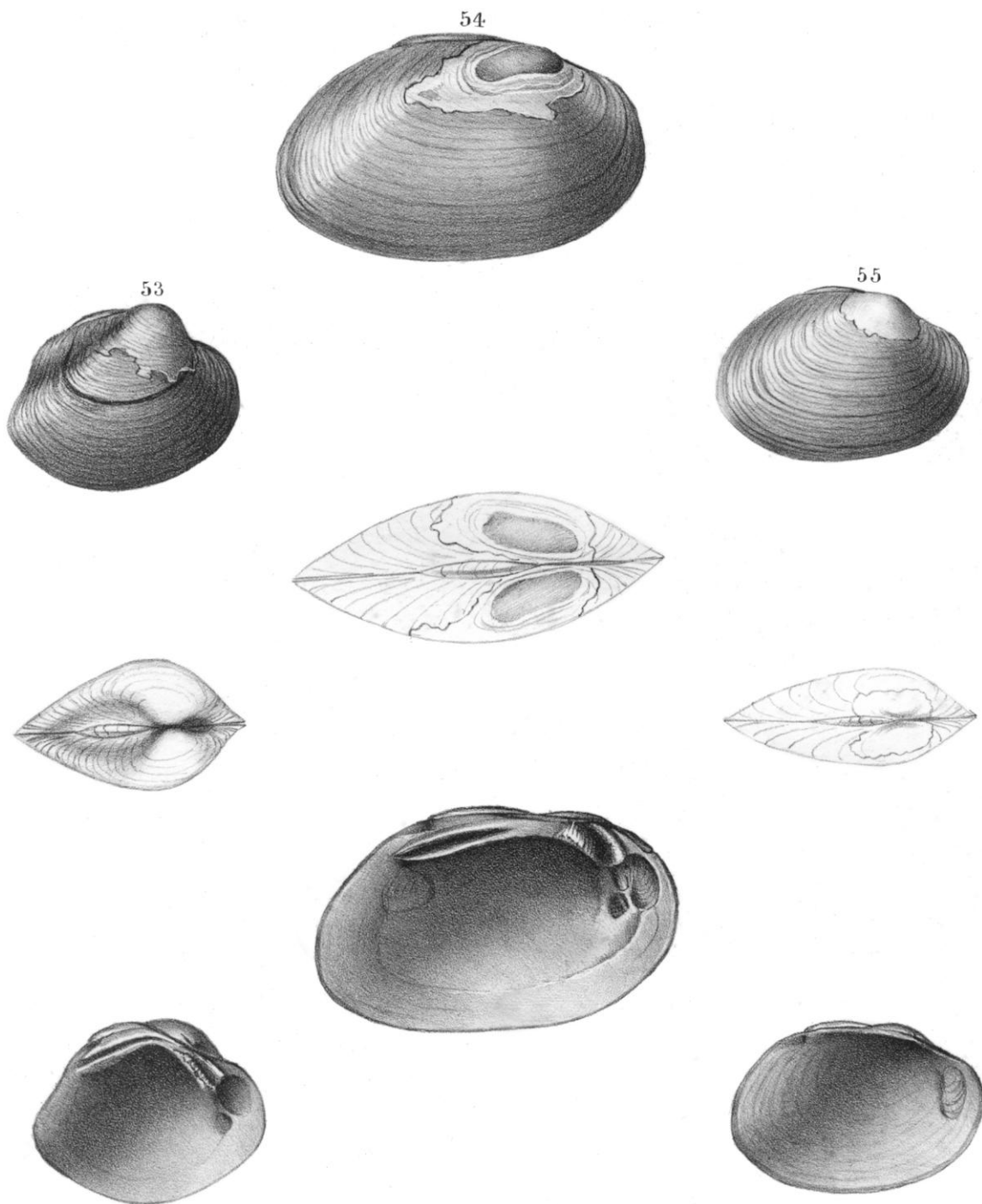
Shell obovate, rather inflated, very inequilateral; substance of the shell thin; beaks prominent; epidermis yellow and green, rough; nacre white and iridescent.

Hab. Central America. Dr. Jay.

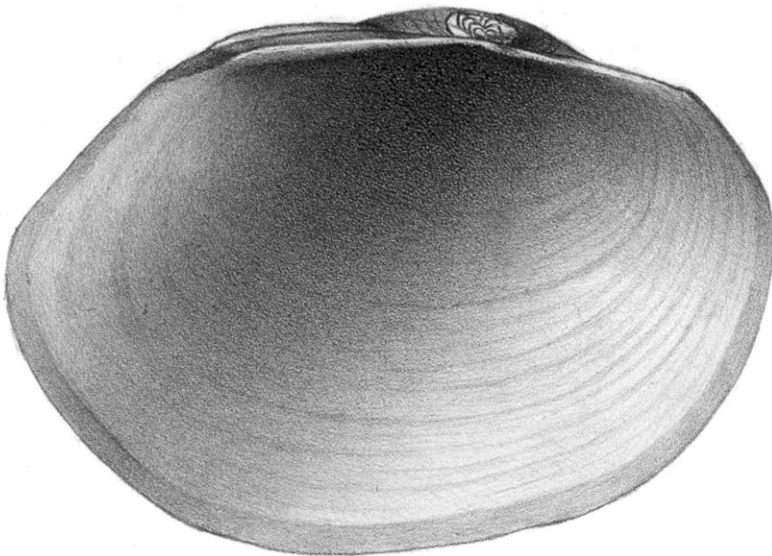
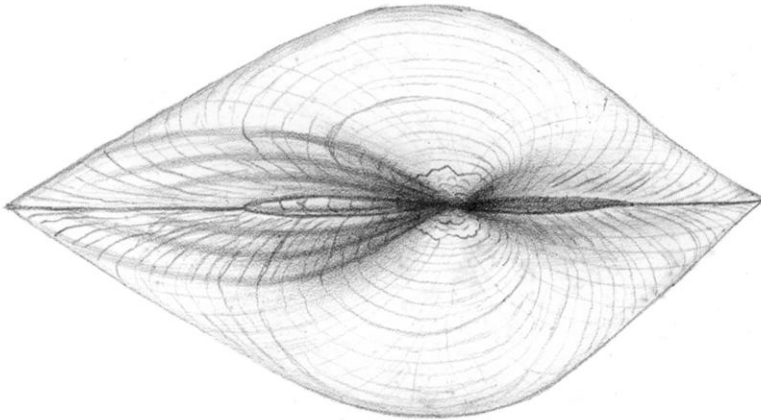
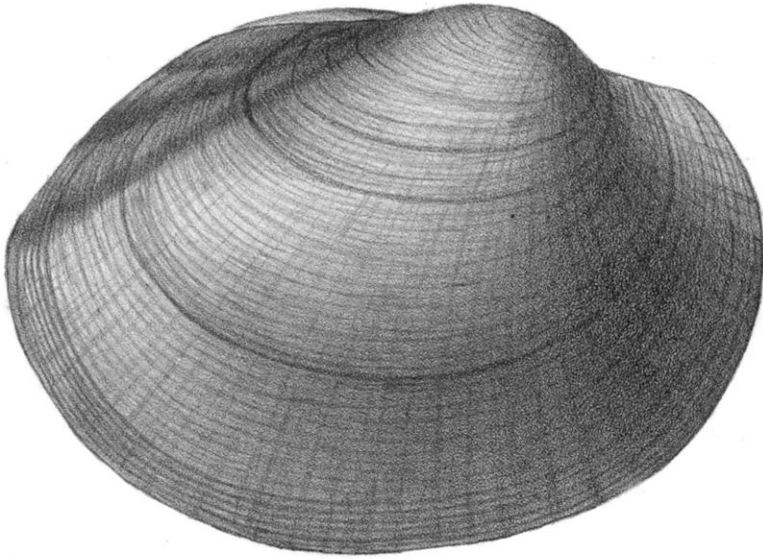
Cabinet of Dr. Jay.

Diam. .6, Length 1.1, Breadth 1.6 inches.

Shell obovate, rather inflated, very inequilateral, rounded before and behind; substance of the shell thin; beaks prominent; ligament short and thin; epidermis yellow and green, rough; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices none; cavity of the shell rather deep and rounded; cavity of the beaks very shallow; nacre white and iridescent.



53. *Unio Rajahensis.*
 54. *Unio callosus*
 55. *Anodonta Montezuma.*



Remarks.—The specimen for which the above description was made appears to be mature. It may, however, sometimes occur larger. The beaks are too much eroded to observe if they were undulated. The green predominates in the epidermis in the superior part of the disk,—the inferior part is yellow. The epidermis is rough from frequent crimping.

ANODONTA GLOBOSA. Plate 24, Fig. 56.

Testâ rotundâ, valdè inflatâ, inæquilaterali; valvulis tenuibus; natibus prominentibus, undulatis; epidermide viridi, obsoletè radiatâ; margaritâ cæruleo-albâ et iridescente.

Shell rounded, very much inflated, inequilateral; valves thin; beaks prominent and undulated; epidermis green, obscurely radiated; nacre bluish-white and iridescent.

Hab. Concha Lake near Tlocatalpam, Mexico. Dr. Burrough.

My Cabinet, and Cabinet of Dr. Burrough.

Diam. 2.2, Length 2.9, Breadth 4 inches.

Shell rounded, very much inflated, globose, much swollen under the beaks, inequilateral, subangular behind; lines of growth distinct and distant; substance of the shell very thin; margin broad; beaks very prominent, much inflated, and finely undulated at the tip; ligament rather long and thin; epidermis green with occasional interruptions of yellow; anterior cicatrices confluent; posterior cicatrices confluent; dorsal cicatrices none; cavity of the shell very deep and rounded; cavity of the beak large; dorsal line very slightly curved; nacre bluish-white and finely iridescent.

Remarks.—This is the most globose *Anodonta* which has been described. The margin is not quite so rounded as *An. suborbiculata*, Say, but the shell is much more inflated. It has some resemblance to *An. gibbosa*, Say, yet cannot be mistaken for that species, on account of its being devoid of the gibbous character and being more orbicular. It is somewhat angular at the anterior dorsal margin. The undulations at the beaks are small and duplicate. Dr. Burrough brought three specimens only, one of which is much older and larger than that figured. Concha Lake is about twenty leagues south of Vera Cruz.

Read June 18th, 1841.

UNIO ARGENTEUS. Plate 25, Fig. 57.

Testâ obliquâ, oviformis, valdè compressâ, valdè inæquilaterali, posticè subangulatâ; valvulis subcrassis; natibus subprominentibus; epidermide luteo-fuscâ, politâ; dentibus cardinalibus subgrandibus; lateralibus longis subcurvisque; margaritâ argenteâ et iridescente.

Shell oblique, oviform, much compressed, very inequilateral, subangular behind; valves rather thick; beaks somewhat prominent; epidermis yellowish brown, polished; cardinal teeth rather large; lateral teeth long and somewhat curved; nacre silver white and iridescent.

Hab. Holston River, East Tenn. Dr. Troost and Mr. S. M. Edgar.

My Cabinet, and Cabinets of Dr. Troost and Mr. Edgar.

Diam. .8, Length 1.6, Breadth 2.5 inches.

Shell oblique, oviform, much compressed, very inequilateral, subangular behind, and regularly rounded before, with two compressed lines behind the umbonal slope, substance of the shell rather thick, thinner behind; beaks somewhat prominent; ligament rather long and thick; epidermis brown, polished and shining on the superior portion, with regular and somewhat distant lines of growth; cardinal teeth rather large, not much elevated; lateral teeth long, rather thick and slightly curved; anterior cicatrices distinct; posterior cicatrices distinct; dorsal cicatrices placed on the under side of the plate between the cardinal and lateral teeth; cavity of the shell very shallow, cavity of the beaks very shallow and angular; nacre silver white and iridescent.

Remarks.—In a box sent to me by Dr. Troost and Mr. Edgar from the waters of East Tennessee, there was a single specimen of this shell. In form it is most nearly allied to *U. oviformis*, Con., but it differs in being rather more compressed. In colour it differs entirely, being much darker and being devoid of rays.

UNIO SPARSUS. Plate 25, Fig. 58.

Testâ sparsim tuberculatâ, triangulari, subinflatâ, subequilaterali, posticè emarginatâ, ad latus planulatâ; valvulis crassis; natibus elevatis; epidermide luteolâ; dentibus cardinalibus grandibus, lateralibus brevissimis rectisque; margaritâ albâ et iridescente.

Shell sparsely tuberculate, triangular, rather inflated, subequilateral, emarginate behind, flattened at the side; valves thick; beaks elevated; epidermis yellowish; cardinal teeth large; lateral teeth small and straight; nacre white and iridescent.

Hab. Holston River, East Tenn. Dr. Troost and S. M. Edgar.

My Cabinet, and Cabinets of Dr. Troost and Mr. Edgar.

Diam. .8, Length 1.3, Breadth 1.5 inches.

Shell sparsely tuberculate, triangular, rather inflated, subequilateral, emarginate behind, flattened on the side from the beak to the margin, carinate on the umbonial slope and sulcate posteriorly; substance of the shell very thick, thinner behind; beaks elevated; ligament very short and rather thick; epidermis yellowish; cardinal teeth very large; lateral teeth very short and straight; anterior cicatrices distinct; posterior cicatrices distinct; dorsal cicatrices placed on the inferior part of the cardinal tooth; cavity of the shell rather deep; cavity of the beak deep and angular; nacre white and iridescent.

Remarks.—Several specimens of this species have at different times been brought to my attention by Dr. Troost and Mr. Edgar. I hesitated for some time separating it from *U. metanever*, Rafin., which in outline it closely resembles, as well as in the arrow-headed markings. It may be distinguished from that species by the size and rarity of its tubercles, having none of the large ones on the umbonial slope which so well characterize the *metanever*. It is also closely allied to *U. tuberosus*, (nobis,) but that shell differs in being thickly covered with tubercles.

UNIO REGULARIS. Plate 25, Fig. 59.

Testâ regulariter ellipticâ, subinflatâ, inæquilateralî; valvulis subtenuibus; natibus vix prominentibus; epidermide luteo-fuscâ, radiatâ; dentibus cardinalibus minutis, lateralibus longis curvisque; margaritâ cœruleâ et iridescente.

Shell regularly elliptical, somewhat inflated, inequilateral; valves rather thin; beaks scarcely prominent; epidermis yellowish brown, radiated; cardinal teeth very small; lateral teeth long and curved; nacre bluish and iridescent.

Hab. French Broad River, East Tenn. Dr. Troost and S. M. Edgar.

My Cabinet, and Cabinets of Dr. Troost and Mr. Edgar.

Diam. .8, Length 1.3, Breadth 2.3 inches.

Shell regularly elliptical, somewhat inflated, inequilateral, rounded on the umbonial slope; substance of the shell rather thin, thicker before; beaks scarcely prominent; epidermis yellowish brown with rather regular rays over the whole disk; cardinal teeth very small, single in the right and double and deeply cleft in the left valve; lateral teeth long and curved along the dorsal margin; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed within the cavity on the under side of the cardinal teeth; cavity of the shell rather deep and rounded, cavity of the beaks very shallow and slightly angular; nacre bluish and iridescent.

Remarks.—In its regular elliptical form this shell resembles *U. radiatus*. It also resembles *U. pictus*, nobis, in some degree, but is more inflated and a much darker-coloured shell. The teeth are remarkably small, and in the three specimens before me disposed to be carious.

UNIO MÆSTUS. Plate 26, Fig. 60.

Testâ ellipticâ, subinflatâ, valdè inæquilateralî; valvulis subcrassis; natibus prominulis; epidermide tenebroso-fuscâ, rugoso-striatâ; dentibus cardinalibus parvis, lateralibus longis curvisque; margaritâ atro-purpureâ et iridescente.

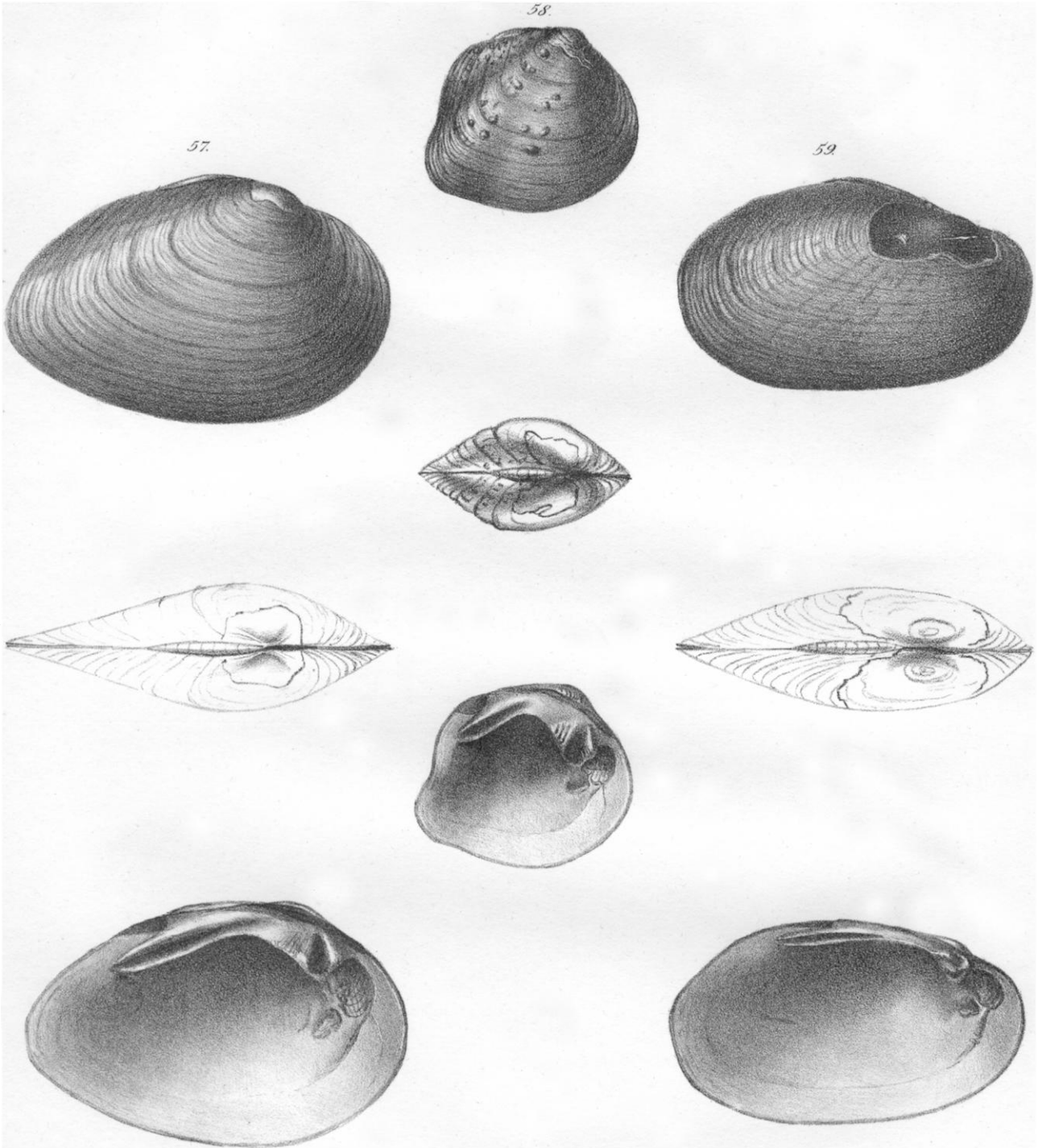
Shell elliptical, somewhat inflated, very inequilateral; valves somewhat thick; beaks somewhat prominent; epidermis dark brown, roughly striate; cardinal teeth small; lateral teeth long and curved; nacre dark purple and iridescent.

Hab. French Broad River, East Tenn. Dr. Troost and S. M. Edgar.

My Cabinet, and Cabinets of Dr. Troost and Mr. Edgar.

Diam. .8, Length 1.1, Breadth 2 inches.

Shell elliptical, inflated, rounded on the umbonial slope, equally rounded before and behind, very inequilateral; substance of the shell somewhat thick, thinner behind; beaks somewhat prominent, placed near to the anterior margin; ligament rather short and thin; epidermis dark brown, nearly black and roughly striate; cardinal teeth small, single in the right and double and deeply cleft in the left valve; lateral teeth long, thin and somewhat curved; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed across the cavity of the beaks; cavity of the shell rather deep and rounded; cavity of the beaks very small; nacre dark purple and iridescent.



H. C. Lea. del.

57. Unio argenteus.

58. Unio sparsus.

59. Unio regularis

On stone by J. T. French.

Sinclair's Lith. Phil^a

Remarks.—This species is most nearly allied to *U. glans*, nobis, but is larger, more transverse, and has a rougher epidermis. In the purple nacre they resemble each other—The beaks of the two specimens before me are eroded, and therefore the character of the tips cannot be given. One of the specimens is less elliptical than the other, and disposed to be angular behind.

UNIO BRUMBYANUS. Plate 26, Fig. 62.

Testâ ellipticâ, inflatâ, inæquilaterali, posticè subbiangulatâ; valvulis crassis; epidermide nigrâ, politâ; dentibus cardinalibus subgrandibus, lateralibus brevibus subrectisque; margaritâ albâ et iridescente.

Shell elliptical, inflated, inequilateral, subbiangular behind; valves thick; epidermis black, polished; cardinal teeth rather large; lateral teeth short and straight; nacre white and iridescent.

Hab. Warrior River, Tuscaloosa, Alabama. Prof. Brumby.

Cabinet of Dr. Griffith.

Diam. .6, Length .8, Breadth 1.2 inches.

Shell elliptical, inflated, inequilateral, subbiangular behind, disposed to be biangular on the umbonial slope, raised on the umbones; substance of the shell thick, thinner behind; ligament thin and short; epidermis black, polished and shining on the superior portion; cardinal teeth rather large, conical, single in the right and double in the left valve; lateral teeth short and straight; anterior cicatrices confluent; posterior cicatrices confluent; dorsal cicatrices placed on the under side of the plate between the cardinal and lateral teeth; cavity of the shell rather deep; cavity of the beaks rather deep and angular; nacre pearly white and iridescent.

Remarks.—This little species exteriorly resembles *U. glans*, nobis, but is rather more angular, and is higher on the umbones,—interiorly it differs in having a white nacre. It is to be regretted that the only specimen sent is in the beaks quite imperfect. This is the only *Unio* sent to Dr. Griffith by Prof. Brumby, and to him I dedicate it.

Read October 21st, 1842.

UNIO DARIENSIS. Plate 26, Fig. 61.

Testâ oblongâ, subinflatâ, inæquilaterali, posticè perangulatâ, ad laterâ planulatâ; valvulis subcrassis; natibus prominulis; epidermide luteo-fuscâ; dentibus cardinalibus compressis, lateralibus longissimis lamellatisque; margaritâ albâ.

Shell oblong, subinflated, inequilateral, angular behind, flattened on the sides; valves somewhat thick; beaks rather prominent; epidermis yellowish brown; cardinal teeth compressed; lateral teeth long and lamellar; nacre white.

Hab. Near Darien, Georgia. J. H. Couper, Esq.

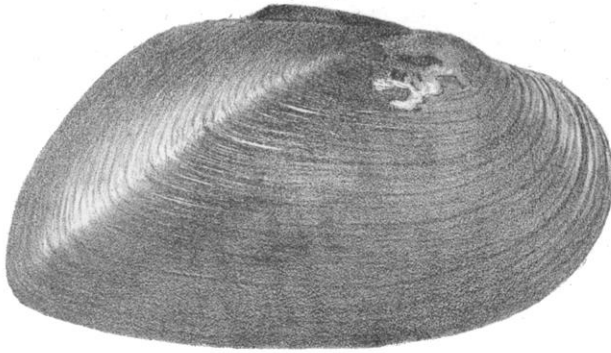
My Cabinet, and Cabinet of Mr. Couper.

Diam. 1.2, Length 1.8, Breadth 2.3 inches.

Shell oblong, rather inflated, inequilateral, with an elevated, rather acute angle on the umbonial slope, and flattened on the sides; substance of the shell rather thick, thinner behind; beaks rather prominent and flattened; ligament rather long and somewhat thick; epidermis yellowish brown, and obsoletely rayed; posterior slope elevated into a prominent carina and corrugate; cardinal teeth rather small, compressed; lateral teeth long, lamellar and nearly straight; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed under the plate posterior to the cardinal tooth; cavity of the shell deep and angular; cavity of the beaks rather shallow; nacre white.

Remarks.—This shell is remarkable for its high, acutely angular umbonial slope, and its flattened sides. Having but a single specimen before me, and that with eroded beaks, I am unable to say any thing respecting the undulations of the beaks. On the sides near to the basal margin there are four or five indistinct folds, but this may not be found to be permanent with the species. In its acute angle and flattened side it has a strong resemblance to *An. angulata*, (nobis.) It seems to be more nearly allied to *U. Congaræus*, (nobis,) than to any other *Unio*.

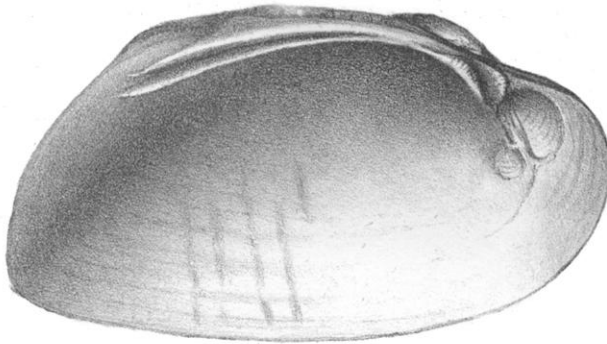
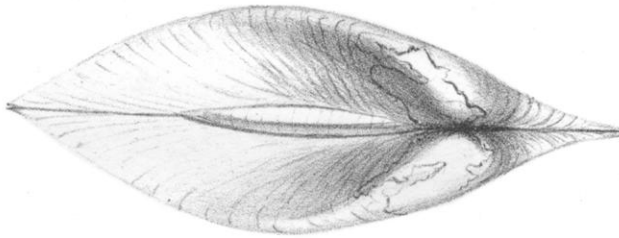
61.



60.



62.



60. *Unio maestas*.
61. *Unio Davionensis*.
62. *Unio Brumbyanus*.

H. C. Lea del.

On stone by J. T. French.

Sinclair's Lith. Phil^a

UNIO HALEIANUS. Plate 27, Fig. 63.

Testâ ellipticâ, subinflatâ, inæquilateralî; valvulis subtenuibus; natibus prominulis, ad apicem undulatis; epidermide tenebroso-fuscâ, striatâ; dentibus cardinalibus magnis, compressis, lateralibus longis subcurvisque; margaritâ albâ et iridescente.

Shell elliptical, subinflated, inequilateral; valves rather thin; beaks rather prominent, undulated at the tip; epidermis very dark brown, striate; cardinal teeth large, compressed; lateral teeth long and somewhat curved; nacre white and iridescent.

Hab. Mississippi River, thirty miles above N. Orleans. Josiah Hale, M. D.
My Cabinet.

Diam. .1, Length 1.5, Breadth 2.8 inches.

Shell elliptical, rather inflated, inequilateral, with a thin, depressed line from the beak to the posterior margin; substance of the shell rather thin; beaks rather prominent, with nearly concentric undulations at the tip; ligament rather long and thin; epidermis very dark brown, nearly black, striate in thin laminæ on the inferior portion of the valves; cardinal teeth large, compressed, elevated, disposed to be double in both valves; lateral teeth long, somewhat curved and lamellar; anterior cicatrices distinct; posterior cicatrices confluent; dorsal cicatrices placed across the centre of the cavity of the beaks; cavity of the shell rather deep; cavity of the beaks shallow and subangular; nacre pearly white and iridescent.

Remarks.—This shell is of a very regular ellipse, and has more resemblance to the *U. parvus*, Barnes, than any other species with which I am acquainted. It is, however, much larger, being quite four times the size of the largest *parvus* I have seen from the vicinity of New Orleans, where they occur largest. Its beaks have nearly the same kind of undulations. A single specimen was given to my brother T. G. Lea by Dr. Hale of Alexandria, Louisiana, after whom I name it. This specimen is now in my Cabinet. I do not know if Dr. Hale got other specimens.

UNIO FOREMANIANUS. Plate 27, Fig. 64.

Testâ triangulari, compressâ, inæquilateralî, posticè angulatâ, ad latera planulatâ; valvulis crassis; natibus prominentibus; epidermide luteâ, valdè radiatâ; dentibus cardinalibus crassis, lateralibus crassis rectisque; margaritâ albâ.

Shell triangular, compressed, inequilateral, angular behind; valves thick; beaks prominent; epidermis yellow, much radiated; cardinal teeth thick; lateral teeth thick and straight; nacre white.

Hab. Coosa River, Alabama. Dr. Brumby.

My Cabinet, and Cabinets of Dr. Foreman and Dr. Brumby.

Diam. .7, Length 1.2, Breadth 1.6 inches.

Shell triangular, compressed, inequilateral, angular on the umbonial slope and flattened on the sides; substance of the shell very thick, thinner behind; beaks very prominent and angular; epidermis yellow with numerous capillary wavy rays; ligament short and thick; posterior slope slightly elevated; cardinal teeth thick; lateral teeth short and straight, the plate between these teeth being abruptly arched; anterior cicatrices distinct; posterior cicatrices distinct; dorsal cicatrices placed under the plate posterior to the cardinal tooth; cavity of the shell shallow and angular; cavity of the beaks very shallow and angular; nacre white.

Remarks.—This is an interesting species somewhat allied to *U. formosus*, and *U. securis*. It differs from the former in being more compressed, and in having capillary rays,—from the latter in not being so much compressed, and being destitute of the catenoid rays. I owe to Dr. Foreman's kindness the examination of two specimens which he received among other fine shells from Dr. Brumby, of Tuscaloosa, Alabama. Neither of the specimens are perfect enough on the beaks to ascertain what kind of undulations they may have in a perfect state. The older and more worn specimen is by no means as triangular as the other. The capillary wavy rays cover nearly the whole disk.

ANODONTA DUNLAPIANA. Plate 27, Fig. 65.

Testâ ellipticâ, inflatâ, subcylindraceâ, transversè vittatâ; valvulis tenuibus; natibus prominulis, undulatis; epidermide nitidâ, luteolâ, obsoletè radiatâ; margaritâ albâ et iridescente.

Shell elliptical, inflated, subcylindrical, transversely banded; valves thin; beaks slightly prominent and undulated; epidermis shining, yellowish, obsoletely rayed; nacre white and iridescent.

Hab. South Carolina. Mrs. Dunlap.

My Cabinet, and Cabinet of Mrs. Dunlap of Salem, Mass.

Diam. 1.5, Length 1.6, Breadth 3.4 inches.

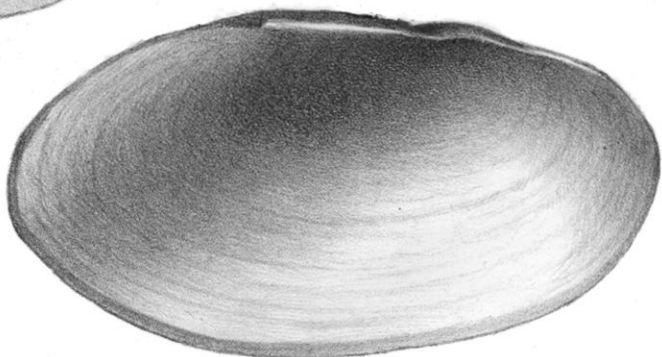
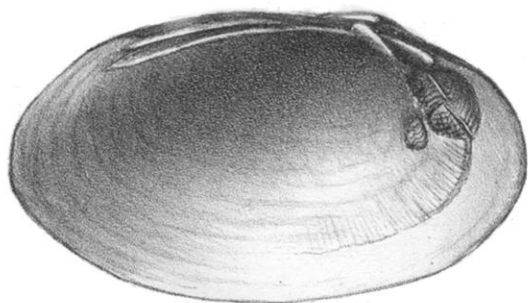
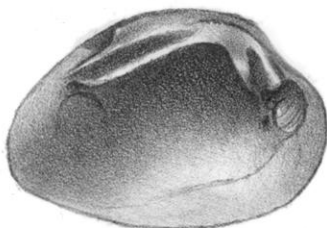
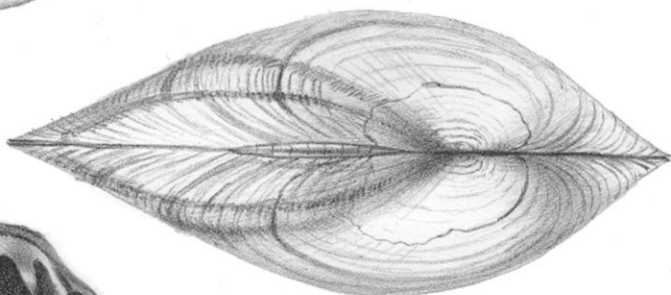
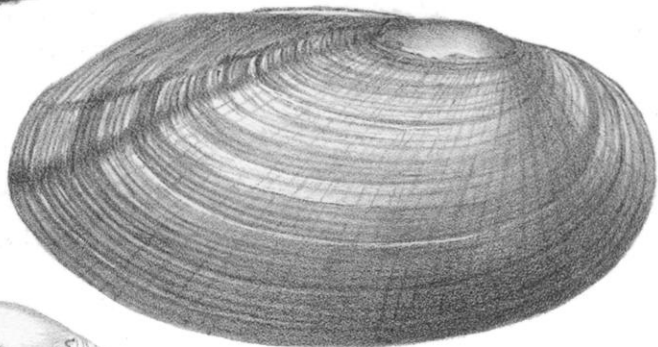
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63



65



H. C. Lea. del.

63. *Unio Haleianus.*

64. *Unio Foremanianus.*

65. *Anodonta Durlapiana.*

On stone by J. T. French

Sinclair's Lith. Philad.

Shell elliptical, smooth, polished, very much inflated, somewhat cylindrical, having transverse green bands; substance of the shell thin; beaks slightly prominent and undulate at the tip; ligament long and very thin; epidermis polished, yellowish, interrupted by green transverse bands, with numerous small rays darker on the posterior slope, where they are very distinct and capillary; anterior cicatrices confluent; posterior cicatrices confluent; dorsal cicatrices none; cavity of the shell deep and rounded; cavity of the beaks very small; dorsal line nearly straight; nacre white and iridescent.

Remarks.—Mrs. Dunlap, whose name it gives me pleasure to place to this shell, has favoured me with three specimens of this beautiful *Anodonta*, all of which have the remarkable green bands mentioned. It has some resemblance to *An. fluviatilis*, with some of the characters of *An. Couperiana*, (nobis.) It is less oblique than the former species, and more cylindrical, and has the peculiar capillary rays of the latter species. It differs from *An. Couperiana*, in being a larger species, in being without the gibbous character, in being less rayed and in being thicker,—the nacre is also less blue, there being a slight pinky hue in the *Dunlapiana*. On the posterior slope on each valve there are two distinct green rays passing from the beaks to the posterior margin.

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CORRIGENDA.

- Page 165. For *Melania lævigata*, read *Melania lævis*; *lævigata* being preoccupied by Lamarck.
- Do. 167. For *Melania rufa*, read *Melania rufescens*. The specific name *rufa*, being preoccupied by Dr. Philippi, for a Sicilian species.
- Do. 177. For *Melania corrugata*, read *Melania rugosa*; *corrugata* being preoccupied by Lamarck.
- Do. 186. For *Melania striata*, read *Melania striatula*; *striata* being preoccupied by Mr. Sowerby, for a fossil species.